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OCTOBER 1957

the Airman

OFFICIAL JOURNAL OF THE AIR FORCE

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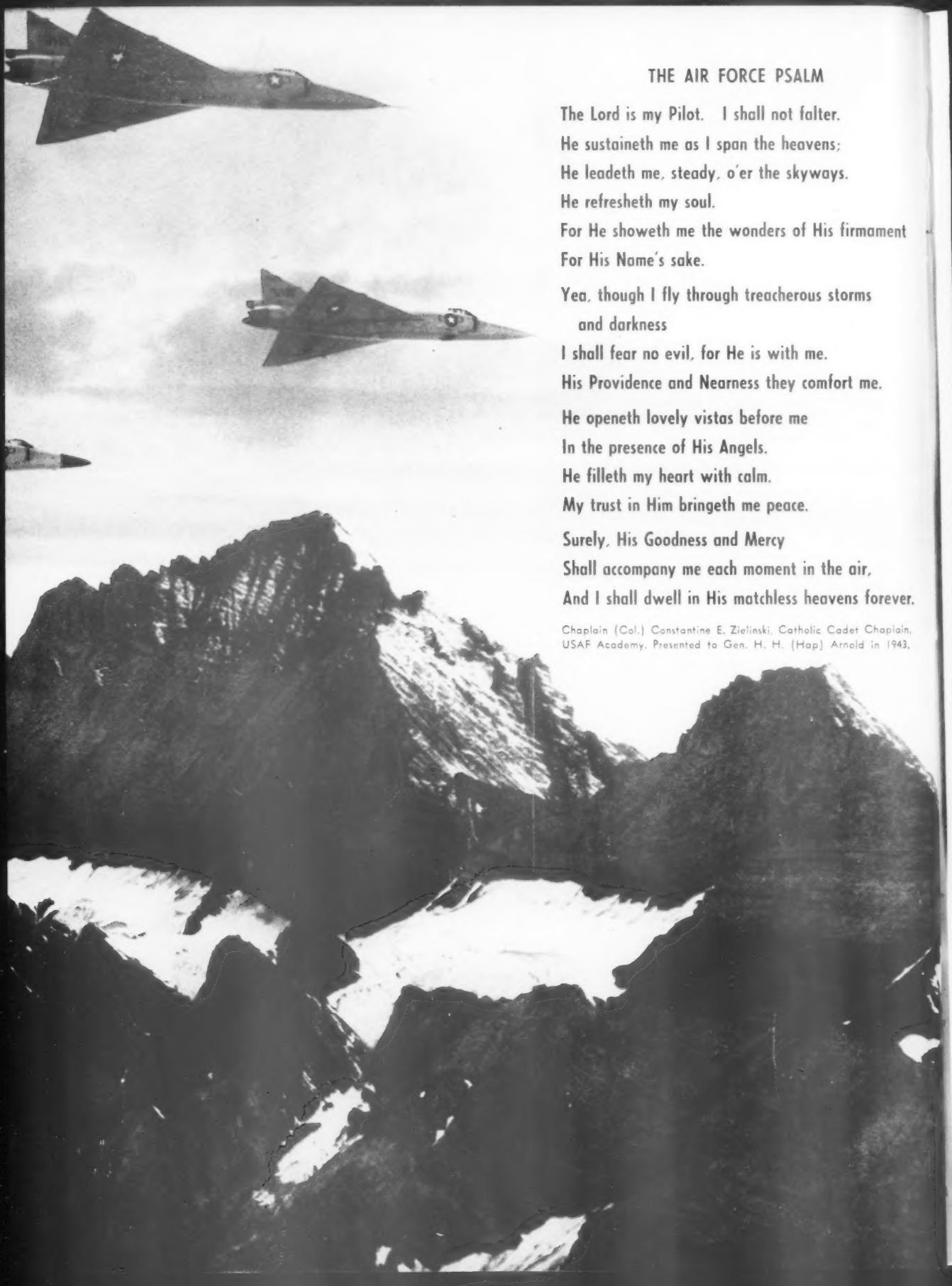
TACTICAL AIR COMMAND



THE AIR FORCE PSALM

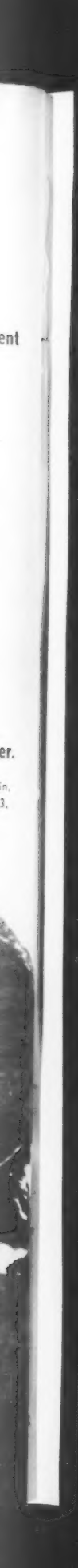
The Lord is my Pilot. I shall not falter.
He sustaineth me as I span the heavens;
He leadeth me, steady, o'er the skyways.
He refresheth my soul.
For He showeth me the wonders of His firmament
For His Name's sake.

Yea, though I fly through treacherous storms
and darkness
I shall fear no evil, for He is with me.
His Providence and Nearness they comfort me.

He openeth lovely vistas before me
In the presence of His Angels.
He filleth my heart with calm.
My trust in Him bringeth me peace.

Surely, His Goodness and Mercy
Shall accompany me each moment in the air,
And I shall dwell in His matchless heavens forever.

Chaplain (Col.) Constantine E. Zielinski, Catholic Cadet Chaplain, USAF Academy. Presented to Gen. H. H. (Hap) Arnold in 1943.



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OFFICIAL JOURNAL OF THE AIR FORCE

VOLUME 1, NUMBER 3 OCTOBER 1957

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LOCAL WAR

In the second decade of the atomic era two military threats confront the United States and the free world. The most serious and immediate threat is the existing and increasing Soviet capability to launch nuclear attack directly against this Nation. This threat places our ultimate national survival at stake. The second threat, local aggression, affects our national interests, and, left unopposed, could become an ever-growing danger to our allies and the sovereignty of free nations everywhere.

If THE AIRMAN is to fulfill its stated purpose of bringing its readers information to enhance their understanding of airpower and its uses and values in peace and war, it is essential that we examine these two threats against the free world in their relationship to the Air Force as it exists today. The threat of global war, with its chilling prospect of nuclear air strikes between the major participants, is well known to nearly every American. SAC has become almost a household word. In the past decade it has been the main deterrent to global war, and this is as it should be, for this Nation must never lose sight of the main threat to our continued existence as a world power dedicated to the principles of freedom and justice.

Unfortunately, there does not exist a comparable knowledge of the problems posed by local war—limited war—brushfire war—call it what you will. There are those who have dwelt upon the problem of local war almost to the exclusion of consideration for the main threat. To place each in its proper perspective, THE AIRMAN will devote articles in this and succeeding issues to examining the various functional commands which comprise the USAF's offensive, defensive, and combat-support forces. The first of these articles is "TAC Is Global," on page 5 of this issue.

It always helps to define, or otherwise identify, basic terms in any discussion of complex matters such as strategic considerations and force structures. It is hardly necessary to define global war, which would certainly involve nuclear air attack on the homelands of the two major world powers. Local war, on the other hand, could range from isolated guerilla activities to a major conflict. Therefore, we can start with the premise that local war is any situation involving armed conflict short of global war.

There is little question but that the Air Force has the current capability to successfully prosecute global war. What is not so readily apparent is that our Nation's airpower structure already has the flexibility, weapons-selectivity, and mobility to successfully meet the requirements of national policy in any conflict or so-called local war. The inherent variable capability of modern air forces is of immense significance to our Nation.

We hope that in this issue, and those to follow, our editorial examinations of the relationships between global and local war and the Air Force will be of interest and value to you.

USAF PERIODICAL 30-15

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THE AIRMAN is primarily a medium for the exchange of ideas and information among Air Force personnel. Readers are encouraged to submit articles, short subjects, photographs and artwork. All contributions will be given consideration; suggestions and criticisms are welcomed. Opinions expressed by individual contributors do not necessarily reflect the official viewpoint of the Department of the Air Force. All photographs are official USAF photos unless otherwise designated.

Use of funds for printing this publication approved by the Secretary of the Air Force and the Director of the Bureau of the Budget July 5, 1956.

NAME THAT SONG

Sir: *Congratulations on a splendid magazine.*

Recently, I heard a song on one of the San Francisco TV channels. I have never heard the piece before and wonder if it is an official Air Force song. Would it be possible to publish the answer to my question and the song's lyrics in the next issue of THE AIRMAN?

A/1C David R. Turcotte
Hamilton AFB, Calif.

The song you heard was probably "U. S. Air Force Blue," which is being used in the USAF recruiting program. Thus far no recordings have been made for public sale. Here are the words:

U. S. AIR FORCE BLUE

They took the blue from the skies
And a pretty girl's eyes
And a touch of old glory's hue
And gave it to the men who proudly wear
The U. S. Air Force blue.

Oh, they are men with a dream
On America's team
They're a rugged and ready crew,
And you can bet your boots
The world looks up
To U. S. Air Force blue.

They know where they're going,
They set their course
The sky's no limit in the Air Force.

They took the blue from the skies
And a pretty girl's eyes
And a touch of old glory's hue
And gave it to the men who proudly wear
The U. S. Air Force blue.
And you can wear it, too.
The U. S. Air Force blue.

★ ★ ★

SPEAKING OF BOOKS

Sir: *I believe everyone is glad to again have an official Air Force journal.*

As a librarian I was particularly interested in the "Air Age Library." The reviews are well written and interesting. While it is realized the Air Force Book Program and the base exchanges must be supported, the writer personally feels that a fine opportunity to encourage reading, which, after all, should be the paramount interest, was missed, and will be missed, if the Air Force library service continues to be ignored. The Air Force operates one of the largest library systems in the world with book circulation approximating an annual rate of 10,000,000 volumes.

John M. Hetrick
AF Office of Scientific Research
Wash. 25, D. C.

We did not intend to ignore the Air Force library service. Your point is well made and future book reviews will remind readers that the books are available in their base libraries.

★ ★ ★

"HIGH FLIGHT"

Sir: *On the inside back cover of your first issue appears a work by Pilot Officer John G. Magee, Jr., entitled "High Flight." When I read it, I was struck with the thought these words should be set to music. Can you give me any information on the author . . . ?*

Col. Jean F. Rydstrom
Scott AFB, Ill.

Sir: *I am a civilian Air Force employee . . . I think the poem by Pilot Officer Magee is the most beautiful piece I have ever read. Could you tell me how the poem came to be written?*

Miss Sharon M. Huntley
Truax AFB, Wisc.

Sir: *The (August) cover painting by Bob McCall and the poem, "High Flight," inside the back cover seem most appropriate. I am thinking of their use in an office, pilots' lounge, or private den . . . "High Flight," in scroll form, would be an adornment for any room . . .*

Lt. Col. Michael C. Horgan
Maxwell AFB, Ala.

Space limitations prevent us from using more than these brief excerpts from the numerous complimentary communications received about *High Flight*, the inspired sonnet of a youthful American flier who lost his life serving with a Royal Canadian Air Force squadron during the Battle of Britain.

Magee was only 19 years old when his imagination captured all the exultant wonderment of flight with a minimum of words as he piloted his *Spitfire* along "the wind-swept heights" above the UK. In September, 1941, just a few weeks after his RCAF unit arrived in England, he dashed off a boyish note to his parents, that told how the soaring lines were born: "I am enclosing a verse I wrote the other day. It started at 30,000 feet and was finished soon after I landed. I thought it might interest you."

The letter went to a distinguished address, historic St. John's Church on Lafayette Square, opposite the White House, in Washington, D. C. The pilot's father, Rev. Dr. John Gillespie Magee, was then rector at this widely known "Church of the Presidents" where the Nation's leaders have worshipped since 1816. Dr. Magee has since deceased; his widow lives in Pittsburgh.

Pilot Officer Magee was born in China, where his father had been a missionary since 1912. The boy first came to the United States in his early teens to attend prep school in Connecticut, where his marked literary talent began to show itself. A few years later he went to England's famed Rugby School, winning the coveted Rugby poetry prize in 1939, a few months before World War II exploded.

Returning to the States, young Magee decided against accepting a scholarship at Yale and instead joined the RCAF because he felt his duty lay in serving the cause of freedom. He was 18 when he enlisted in September 1940.

The Library of Congress acclaimed *High Flight*, ranking Magee "with our best known poets of faith and freedom," and noted literary authorities hailed the sonnet as the work of gallant genius. The plaudits never reached the poet's ears. Within three months of the poem's creation, Magee flew his last mission and, as he so prophetically wrote, put out his trusting hand "and touched the face of God" which he knew all along waited in the sky where he found it.

The original of *High Flight* is preserved as a rare manuscript in the Library of Congress. A copy hangs on the wall inside the entrance to St. John's Church, where its eloquent lines are read by the countless tourists and other visitors who come to Washington.

TAC is *Global*

with a new capability to deter or fight local wars.

by Capt. Ted R. Sturm

Brig. Gen. Henry Viccellio on the move. The 19th AF commander enroute to Europe with a Composite Air Strike Force.

MISSION

Tactical Air Command will command, organize, equip, train, and administer the forces, assigned or attached, to include planning for and participation in tactical air operations for light and tactical bombardment, day-fighter, fighter-bomber, tactical missile, troop carrier (including fixed and rotary wing), assault, reconnaissance, and support units in accordance with the directives and policies issued by Headquarters USAF. This includes the planning for and development of the capability of deployment of suitably constituted mobile tactical striking forces to any area of the world, as may be directed.

THIS is the story of TAC in two wars, neither of which has happened. One is the limited or peripheral conflict; the other an all-out, globe-encompassing holocaust. As long as Tactical Air Command and Strategic Air Command are on guard, these wars may never happen. Although most well-read Americans today know the role of SAC in a major war, the new role and capability of TAC are comparatively unknown. TAC's specialty is the small war, but it is also ready for—and indispensable to—any general war. Here is the story of the swift-striking, far-ranging power of TAC in action.

Officially, the mission of Tactical Air Command is set forth in one prosaic paragraph—two sentences long. To the more than 58,000 airmen of the command, the mission may make dull reading. The tempo of their lives, paced to the myriad tasks spelled out by the mission, however, is anything but dull. The men, combined with the tools of TAC, are the heartbeat and lifeblood of this 20th century power. Together, they embody one of the greatest *destructive* forces for *peace* that the world has ever known.

Men and machines stand behind and between the lines of the written mission—inlaid parts of a dynamic mosaic of hissing rockets streaming from low-flying jets . . . of groaning fighter-bombers whipping into Immelmanns, tossing nuclear bombs . . . paratroopers spilling from the bellies of giant transports . . . an indifferent sky, dotted with indolent parachutes . . . flashing, supersonic fighters, breathing the smoke of their own rockets as they scream at enemy fighters . . . all-seeing, radar eyes of other jets, recording secrets on photographic brains . . . sleek *Matador* missiles somnolently raising atomic heads . . . and deadly fighters, innocently nursing from guardian tankers high in the sky, then moving on across continents.

Tactical Air Command—always training, moving, strong, and ready. Its planes and men have landed at both ends of the earth—on the vast continent of Antarctica and on meager islands of ice in the North Polar Sea. They sweep high over oceans, or close to the deck of Europe; near majestic Fujiyama, the arid deserts of North Africa, or the winding Amazon. TAC is a global force.

TAC's 18th Air Force is commanded by Maj. Gen. Chester E. McCarty.

Gen. O. P. Weyland, TAC's boss. His friends call him "Mr. Tactical Air."

Maj. Gen. Robert M. Lee commands TAC's 9th Air Force

Brain center of all TAC's might is nestled amid the soft green trees of Virginia's southeast coast at Langley AFB. The tranquility of the environment is no balm to TAC's boss, Gen. O. P. Weyland. A dot-strewn map of the world marks the location of his units—far-flung elements of his three Air Forces, each designed and equipped to accomplish the multitudinous tasks set forth in the mission.

There is the 9th Air Force, with its headquarters at Shaw AFB, S.C.—only a *Matador-missile* shot away from Langley. Maj. Gen. Robert M. Lee commands the 9th—a direct descendant of the history-making 19th Tactical Air Command of World War II fame. General Lee's bases permeate most of the southern territory of his Civil War namesake. He controls all of the tactical bombers; reconnaissance and tactical missile wings; day-fighters; fighter-bombers; and troop carrier organizations east of the Mississippi.

The 18th Air Force, once known for its legendary exploits in the realm of aerial logistics, is now a reconstituted body. This summer, in a major TAC reorganization, the 18th moved its headquarters to Waco, Tex. It shed several wings of Douglas C-124 *Globemaster IIs* (transferred to MATS), and now controls all of TAC's fighter-bomber and day-fighter wings west of the Mississippi. The 18th is commanded by Maj. Gen. Chester E. McCarty. His Waco headquarters is located in two rambling one-story buildings within the city limits.

TAC's muscle is part of both the 9th and 18th—flexed and applied anywhere, anytime, through the medium of the 19th Air Force.

19th Air Force boss is Brig. Gen. Henry Viccellio. From Foster AFB, on the humid Gulf Coast of Texas, General Viccellio runs the streamlined, highly mobile unit known as the 19th. It is a unique organization. Essentially, it is a command without anything to command—until the signal is flashed to assemble an entity known as a Composite Air Strike Force (CASF).

During "quiet" periods, the 19th keeps busy planning, training, and engaging in peacetime maneuvers. The maneuvers are aimed at training personnel in the use of ever-improving weapon systems as they would be employed in actual combat. The 19th gets complete units from the 9th and 18th, trains them in the special functions of the CASF, and then sends them back to their original outfits, earmarked and

The "buddy" system of aerial refueling; the new, fighter-to-fighter technique adds range to tactical aircraft.

ready for future use in a CASF.

These three Air Forces are the Tactical Air Command. Working as an extremely coordinated striking power, they keep their edge through the honing effects of training exercises conducted with land, naval, and amphibious forces of all U.S. services, and the forces of Allied Nations. Some of their wings keep a squadron overseas on a six-month training program.

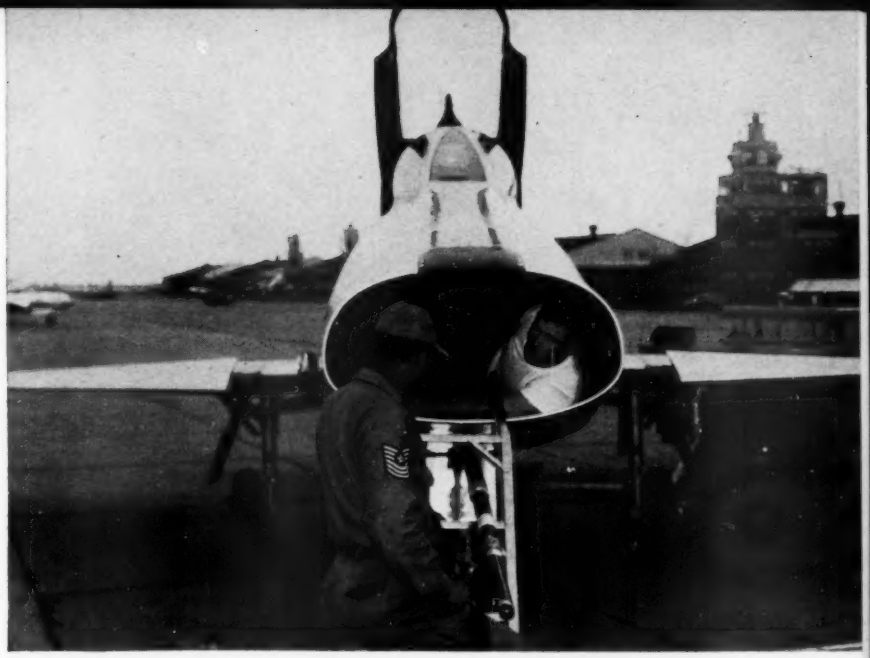
Primarily, however, TAC's power is centered in the United States rather than apportioned among Allied Nations and overseas commands. Today, the routine nature of air-to-air refueling enables deployment of ZI units to any place in the world in a matter of a few days.

Smoke On The Horizon

The scenario is written. The cast is known and ready. Within this setting, the overtones of aggression on the move signal the rise of the curtain on a hypothetical small war. It may well begin with a top-secret cable from a small, independent nation. With the usual signs of an imminent attack, the free nation might appeal for assistance. The U.S. decides to act. As the reverberations from the endangered country echo through the Pentagon, TAC begins to move.

General Weyland issues orders to General Viccellio. The staff of the 19th is assembled and is assuming operational control of the entity known as the Composite Air Strike Force. The people and the equipment of this force are getting ready all over the country. There is a job to be done.

From bases of General Lee's 9th, and General McCarty's 18th Air Forces, individual, earmarked flights and squadrons are scrambling to form General Viccellio's CASF. Boeing KB-50 and KB-29 tankers lumber into the air to station themselves along the routes to the troubled area. Texans, used to big things, hardly glance up at the big roar of a flight of North American F-100 *Super Sabres* climbing out of sight over Foster.



Inside job—key men working on key aircraft.

Sumter rumbles with the sounds of armed activity as flights of Douglas RB-66s and McDonnell RF-101 *Voodoos* depart from Shaw AFB. Pots of shrimp creole rattle on the stoves in Louisiana when a squadron of Republic F-84F *Thunderstreak* fighter-bombers kick in afterburners over England AFB. Finally, vacationers momentarily lose the advertised peace and quiet of Florida's Gulf Coast as they wave goodbye to a squadron of B-66s. The Composite Air Strike Force is complete—except for supplies.

That's why TAC's troop carriers are on the move. Previously prepared flyaway kits go into the gaping jaws of a dozen Lockheed C-130 *Hercules* transports. Last to leave is the flying headquarters of General Viccellio, departing Foster in a Douglas C-54 *Skymaster* for his new command post.

Before this swiftly assembled, nuclear armed force reaches its destination half a world away, the thirsty jets will suck fuel from the tankers several times. But the entire force will be ready for immediate action upon arrival and can logistically sustain itself for 30 days of combat.

Plans for the size and deployment of the strike force had been prepared months ago. The plans and units are always ready for any potential trouble spot. That's why the CASF was assembled so quickly and enroute within hours. Although the United States alerted all elements of its Armed Forces, only the CASF was being sent to the area. Its presence might deter the invasion. If it didn't, the CASF would repel it.

As the crewmen of this force settle down to the routine of their flight, they bear in spirit the CASF concept as it was explained by General Weyland in a recent speech:

"The primary purpose of this force is not to fight. It is a deterrent force. If it can arrive in time, there will be no aggressive move on the part of the opposing nation. For to undertake a military campaign there must be some element of success present.

"Our strike forces are equipped and trained in nuclear bomb delivery. We can take tactical, atomic weapons into virtually any area and deliver them successfully against well-defended positions. Our fighter-bombers and tactical bombers can deliver a bomb to a target, evading enemy automatic weapons fire and radar by flying and bombing at low altitudes.

"We can do this at the risk of one aircraft and deliver the firepower

which only a decade ago took thousands of bombers."

Herein lies the importance of TAC in an era where the small-war threat prevails.

Without reverting to hindsight, it is interesting to muse over past history in light of the differences between TAC today and yesterday. The main difference is today's global mobility, a much used phrase which, in the case of TAC, is manifested in the Composite Air Strike Force. With its lifeblood drawn from the 9th and 18th, its nerve center entwined in the 19th, the CASF exists because of three things: specialized forces trained in the delivery of small nuclear weapons; a long-range fighter-bomber, fighter, and tactical bomber capability through aerial refueling; and a global concept with complete plans and trained forces in a constant state of readiness.

This, then, is the role of TAC in a small war.

Realistic Exercises

TAC's concept of the CASF is no product of theoretical paperwork. It is a tried and tested operation and is based upon realistic training. "Mobile Baker," the first full-scale deployment of a CASF, and CARIB-EX, a joint exercise, underscored the realism of this training.

Mobile Baker involved the movement of an Air Strike Force to Europe. Arriving in a combat-ready condition, the strike force could have been employed on a combat mission shortly after it landed. Measured from departure of the lead element to arrival of the last element, the time required to place the entire force on European bases was four days.

In CARIB-EX, four F-100Cs took off from Foster AFB at 5 a.m., made a simulated air strike at an assault landing of an invader in the Panama Canal Zone, and arrived back at Foster by noon—4,000 miles had been covered. During the operation, Martin B-57s also struck, demonstrating the Low Altitude Bombing (LAB) system technique, where a nuclear bomb is "tossed" at a target.

The exercise was a tri-service demonstration of the U.S. Armed Forces' ability to react immediately and decisively in any emergency. For Tactical Air Command, it proved again that its long-range fighter capability is a reality.

Watching TAC respond to a small-war threat, the obvious question—in the $64 category—is: Would air strikes with nuclear weapons blow a small war into World War III?

TAC's Maj. Robinson Risner—he emulated Lindbergh's U.S. to Paris flight. Six hours and 37 minutes vs. 33½ hours.

Gen. Twining, when he was USAF Chief of Staff, had a few comments to make in answer to that question.

". . . The argument that the use of nuclear weapons in small wars will automatically bring about global conflict is one that I have never been able to understand. If there are powers who want to enlarge the local battle, they will do so regardless of what weapons we shall be using. If such powers do not want to expand the area of conflict, they will not willfully do so—again, regardless of the weapons we might use."

Examined closely, the irrefutable logic of this statement is apparent and it keynotes the concept of the Composite Air Strike Force and TAC's global mobility as a *deterrent* to Korean-type conflicts.

At The Bell

If the "big bell" ever signals the start of World War III, TAC will be one of the first out of the corner. As SAC bombers speed toward heartland targets and ADC fighters leap to meet enemy bombers, TAC will be spreading out over the world like the blast from an atomic shotgun. Deployed units, not 10 minutes

Watch that first step! Troop carriers above, a battle below.

away from enemy territory, will swarm over selected targets within the hour. A Composite Air Strike Force—or several—will head for the point, or points, of the enemy's main push. The fighter-bombers will go into action simultaneously with supersonic fighters which will be clearing the air of enemy aircraft. At the same time, light bombers will hit behind the enemy's thrust, destroying his communications, railroads, roads, trucks—anything that moves toward the front.

Troop carriers will load with men and equipment, airdropping or airlanding both at crucial points, and will move in support of the Composite Air Strike Forces.

And wherever the enemy is striking, counterair will be in action, interdiction will go on around the clock, and the point of the enemy's drive will be blunted as close-support work assists our ground forces in meeting the attack.

With today's tactical atomic bombs and the capability of their delivery—by the enemy, as well—it is logical to assume that *little ground action will or can take place in the inital phase.*

This is the major difference between tactical air in World War II and Korea, and tactical air in our future, hypothetical war.

As pointed out in the United States Strategic Bombing Survey on the European phase of World War II, no land army can safely move until it is assured of control of the air. Today, nuclear weapons delivered by tactical aircraft make any major surface drive far too costly, if not impossible. That is why tactical air must be as trained and ready as strategic air to meet either total or brushfire wars.

Going For Broke

Specifically, what are the missions of TAC in a general war? Or basically, what is "tactical" airpower? Although mainly the same today as it was in the past, tactical airpower has expanded its concepts and increased its power to such an extent that its employment in a future big war will bear little resemblance to its employment in past wars.

An anonymous general once described the difference between strategic and tactical air war:

"Gentlemen," he said, "on a small farm there is a cow. Every day the farmer leaves his house, crosses a small bridge over a creek, and milks the cow. Then he carries the bucket of milk back over the bridge and into the house where it is consumed.

"Now, if we shot holes in the bucket while the family was consuming the milk, this would be close ground support. If we blew up the bridge so that the farmer couldn't get back to the cow, we would have performed interdiction. This is tactical air warfare. But if we shot the cow, that would be strategic, because we would have destroyed the source of supply."

Within the framework of tactical air war lie many diversified missions. This is more true in all-out war than in a small war, although all missions would be employed to some extent in either case. One outstanding difference during wartime between the units of TAC and the units of SAC is that SAC continues to be "SAC"—under the command of the CINC of SAC, while TAC's units have traditionally been assigned to the Theater Air Commander. To the uninformed, this situation often results in misunderstanding of TAC's functions during war.

For example, reconnaissance missions, fighter kills, interdiction bombing—in fact, all of TAC's functions—were accomplished in Korea by the 5th Air Force, which was the Theater Air Force. Yet all of these units were TAC-trained, or at least employed "tactical" doctrines. When Col. Francis S. Gabreski shot down 6½ MIGs in Korea and 21½ German aircraft in World War II, he was part of the Theater Air Forces performing the first function of tactical air—counterair, or the destruction of the enemy's air force.

In World War II, Gen. George S. Patton's Third Army dash left his right flank exposed to a sizeable enemy force, which in anybody's military book is suicide. But Patton wasn't worried, because General Weyland, who then commanded the 19th Tactical Air Command, kept the enemy stopped with continuous aerial bombardment. This was a combination of interdiction and close ground support.

Most classic example of interdiction or isolation of the battlefield, however, is the Normandy Invasion. Here, for the first time in the history of warfare, the employment of airpower was the contributing factor in the selection of the actual invasion area. With the River Seine to the north and the Loire River to the south, the entire Normandy peninsula was isolated, thus preventing reinforcements from reaching the invasion area during the crucial stages of the landing and subsequent battles. Later, tactical air, having prevented the Germans from pouring men and material into the area, reversed the principle and kept them from retreating. This was interdiction in its purest form.

From the standpoint of close ground support of surface troops, Korea has no parallel. Having won control of the skies over Korea, and with the maintenance of sustained interdiction, tactical airplanes—fighter-bombers and reconnaissance and tactical bombers—were able to operate against frontline enemy troops. By thus aiding the United Nation's ground forces who were facing a numerically superior enemy, tactical air was the dominant factor in achieving the objectives of the U.N.

So stands TAC today, packing a one-two punch that makes any aggressor think twice about starting anything.

As General Thomas D. White, USAF Chief of Staff, said recently: ". . . tactical air forces with enormous firepower, global mobility, operational flexibility, and versatility, have become a deterrent to aggression and a decisive force in war. As such, our Tactical Air Command assumes a place alongside our Strategic Air Command as a potent force for peace." ★

AIRMAN'S WORLD

FOREWARNED IS FOREARMED →

The idea of duplicating emergency procedures is nothing new to flying. For example, check pilots in multi-engine aircraft frequently simulate the loss of one or more engines during check rides.

But how do you duplicate emergency ejection-seat procedures for pilots of supersonic aircraft?

1st Lt. John Pardo, 79th Fighter-Bomber Squadron, RAF Station, Woodbridge, England, has found the answer. Utilizing material from the base salvage yard and a maximum of ingenuity, Pardo fashioned a home-made test ejection seat which is now being used by all pilots in his organization.

The parachute-jump rig is stretched between two 50-foot poles planted 150 feet apart. Atop one is an ejection seat. A metal cable is fastened above the seat and extended to the base of the opposite pole.

The pilot's parachute harness risers are attached to the cable, and when he is fired from the seat he slides down the incline to the ground.

Pardo was the first to test his invention, believed to be the only one of its kind in use throughout the United Kingdom.

* * *

AIRMEN GRADES FOR OFFICERS

The procedure for authorizing airman grades for officers released from active duty under manpower cutbacks was announced in a recent USAF personnel message. Until now, released officers were required to obtain airman grade authorizations from Headquarters, USAF. The new message (AFPTR-P 5242/M, 26 Aug 57) establishes the criteria under which recruiting and reenlistment agencies can authorize airman grades for ex-officers. Local authorization can be made in all cases except those of former Air Force chaplains.

Essentially, any released officer who held an enlisted grade prior to being commissioned may revert to that grade. Those holding permanent grades have a statutory right to enlist in the previously held grade, providing their tour of active military service has been continuous, separation from active military service is under honorable conditions, and enlistment is accomplished within six months from the date of release from extended active duty.

Enlisted grades held prior to Feb. 1, 1951, are considered permanent, while those held later are temporary. Officers who were airmen on or after this date will be enlisted in their permanent grade and immediately promoted to their temporary grade. As an example, an officer who was a permanent staff sergeant prior to Feb. 1, 1951 and was promoted to technical sergeant subsequent to that date would be enlisted in his permanent grade of staff sergeant and then be promoted immediately to his temporary grade of technical sergeant.

Officers eligible for enlistment in a grade lower than E-4 (as determined by paragraph 29d of AFM 39-9) may be enlisted in grade E-4.

There are approximately 3,000 officers holding letters of eligibility for the grade of master sergeant, but it is not known how many of these officers were released under the current cutback. The number, however, is expected to be insignificant. Officers holding such letters are authorized to enlist as master sergeants.

Interesting is the fact that the majority of these letters of eligibility were dispatched in 1950. From 1948-50 the Air Force allowed all Reserve officers who met certain criteria to submit to Headquarters, USAF, a request for an enlisted-grade determination. Letters establishing more than 3,000 officers as eligible for reenlistment as master sergeants upon their release from active duty were sent out before the grade-determination program was closed.

Personnel officials in headquarters confirm that reenlistment of officers affected by this latest cutback *may* alter the airman promotion picture somewhat, but the extent is a factor that can only be determined after such reenlistments have been accomplished.

These same officials, however, are equally certain that the effect on promotions in the top grades would be insignificant.

General Thomas D. White, Chief of Staff, receives a copy of the first issue of THE AIRMAN. Members of THE AIRMAN staff making the presentation are Lt. Col. Harmon H. Harper, M/Sgt. Harold E. Bamford, Dave Karten, and James T. Rawls. →

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ASIAN FLU VACCINATION

Worldwide inoculation of Air Force personnel and their families with the initial shot against Asian flu is scheduled to be completed this month, according to Maj. Gen. Dan C. Ogle, Surgeon General of the Air Force. Booster shots will be given to airmen approximately six weeks to three months later.

The preventive program for influenza calls for mandatory inoculation of Air Force military personnel. Their dependents and civilian employees will follow on a voluntary basis. Adult dependents are receiving the regular dosage of one cc; while children between the ages of five to 12 are being given a .3 cc inoculation, repeated after one week. Children under five will not normally be inoculated.

The Air Force medical service is employing two types of vaccine to combat the worldwide spread of Asian influenza. One, called monovalent, protects only against the Asian influenza virus. The other, called polyvalent, protects against five different types of influenza viruses, including the Asian type. The reason for the two different types? Despite the crash program to effect mass immunization before cooler weather, only limited supplies of polyvalent vaccine were available. However, the Air Force Surgeon General points out that both types of vaccine are equally effective against Asian flu.

Asian influenza is expected to hit worldwide this fall. It is relatively mild (in no way comparable to the killing "Spanish flu" of 1918-19), and is likely to cause only a small number of deaths among the feeble young and enfeebled old. But it may compel 10 to 20 percent of the population in affected areas to take to their beds at the same time, thus crippling essential services.

Influenza may be recognized by its characteristic but relatively nonspecific clinical symptoms: fever, chills, sweating, headaches, sore throat, inflammation of the nasal passage, bronchitis, a feeling of general weakness and discomfort, and aching muscles.

Preventive measures include: vaccination, adequate rest, wholesome nutrition, avoidance of crowds and intimate contact with persons known to have the flu, isolation of patients, and general hygienic procedures.

SEA DUTY

USAF's Air Research and Development Command is establishing a series of floating bases in the Atlantic Ocean to fill the tracking gap that exists in the missile test range. Operations are scheduled to begin this fall.

Six Army FS (freight supply) cargo vessels will be spaced over a 3,000-mile gap of water between St. Lucia and Ascension Islands. This gap is part of the 5,000-mile interservice long-range missile test range.

The ships carry special electronic equipment designed to record and transmit data concerning the missile tests. Information will be forwarded by radio to Patrick AFB, Fla., site of the test firings.

Home bases for the vessels will be Recife and Belem in Brazil, and Georgetown, British Guiana, where they will refuel and pick up supplies between firings. During their tracking mission they will stretch in a line roughly northwest to southeast. St. Lucia Island is in the Lesser Antilles Chain, north of Trinidad. Ascension is in the mid-Atlantic Ocean, between Recife and Angola, Africa.

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APOE FOR FIVES

Early success of the direct-reservation system for moving unaccompanied USAF members to and from overseas areas has been great enough to dictate expansion.

Effective October 1, 5-level airmen joined officers and 7-level travelers in the new program at all aerial ports of embarkation (APOE). Charleston APOE, S. C., has been moving all unaccompanied personnel by air, and McChord APOE, Wash., contemplated such action by October 1. In its first six months of operation more than 20 percent of all eligible personnel being assigned to overseas areas moved via the new system. Estimates indicate the addition of 5-level personnel will push the overall average close to 45 percent.

Personnel officials repeated their earlier reminder of individual responsibility in meeting requirements for completion of processing prior to departure from their home station, and in heeding reporting hours, as well as dates, to the APOE.

For those scheduled to depart between midnight and noon, reporting times will be not more than 24 hours or less than two hours before takeoff. For personnel scheduled to depart between noon and midnight, reporting will be accomplished not more than six hours or less than two hours prior to departure.

Preparations to be completed at the home station are outlined in AFM 35-6.

INADEQUATE HOUSING

President Eisenhower has signed Public Law 85-241, the military construction authorization act of 1957. Section 407 of the law deals with inadequate quarters and the surrender of housing allowances, long a thorn in the side of personnel occupying inadequate quarters.

These personnel may become eligible to continue occupancy of their present quarters on a rental basis which will be less than their present quarters allowance. Final action will depend upon the results of a survey to be conducted by housing officials within the next 60 to 90 days.

Throughout the Air Force approximately 9,000 units will be affected by the new law which specified all public quarters except wartime Lanham Act; Title VIII (Wherry and Capehart); quarters erected after January 1, 1950; and bachelor officer quarters. A definite decision has not been made concerning the affect of the law on overseas housing. This problem is under study and is expected to be resolved within the next few weeks.

Principally, those affected will be public quarters erected with funds appropriated by Congress for the specific purpose of constructing housing. This will include converted barracks-type dwellings.

Four standards which have been proposed for determining the degree of adequacy of these quarters are location, livability, net floor area, and construction and facilities.

Locations considered suitable should not be adjacent or in close proximity to firing ranges, troops areas, areas producing objectionable odors, ammunition storage dumps, or any other hazardous or isolated area.

Total floor area, properly distributed among the various rooms, will be the principal governing factor of livability. Additionally, such points as room arrangement and adequate outside exits shall also govern.

Construction and facilities adequacy includes state of repair; proper ventilation and lighting; kitchen equipped with range and refrigerator; and proper water, sewage, electricity, and heating services.

Only in unusual circumstances will housing be declared inadequate for reasons of size alone, but the following net floor areas will be considered as a contributing factor in final decisions:

Number of Bedrooms	Officer Dwelling Square Feet	Airmen Dwelling Square Feet
1	700	610
2	865	785
3	1,035	985
4	1,185	1,080

Quarters which are eventually judged to be inadequate will be affected in one of two ways. Either rents for the occupants will be lowered to correspond with rents for similar quarters in the local community, or such quarters will be improved, converted, or demolished.

Several factors will govern disposition decisions. Among these are cost to improve existing housing which has been judged inadequate, and availability of housing in adjacent civilian communities.

Housing officials in Washington were quick to point out that no immediate date could be given for the reduced rental rates, but the survey is scheduled to get underway at an early date, and action will be taken as soon as possible.

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SOMETHING NEW HAS BEEN ADDED

Two new courses bowed into the curriculum at Chanute AFB, Ill., on October 2 with the introduction of KC-135 Inflight Refueling Technician and KC-135 Boom Operator courses.

Chanute instructors have been busy devising new and more realistic training devices to incorporate into the courses to more clearly simulate the real thing.

Final result is the largest portable trainer ever constructed at this Technical Training Air Force base, employing a framework 28 feet long, 11 feet wide, and 13.5 feet high. The boom extends an additional 50 feet. The frame is mounted on huge casters, assuring ready mobility to any desired training location within the school.

The new trainer was designed to correspond as closely as possible to the actual installation aboard the Boeing KC-135 *Stratotanker*. The final product parallels the original in height of the well and boom, and virtually assures that students completing the course will be able to move with greater ease and speed from classroom to operational organizations.

Frame, pod, and all attaching parts were manufactured locally. The trainer can be operated by hydraulic, electrical, or manual control.

CAP AND GOWN

Formal ceremonies at Mitchel AFB, N. Y., on October 14 marked a historic day in educational annals in this country.

A joint announcement by Col. Marshall A. Elkins, commander, Mitchel AFB, and Admiral Richard L. Conolly (USN, retired), president of Long Island University, heralded the establishment of the first fully-accredited residence college on a United States military installation.

Mitchel College of Long Island, the official title of the new school, will offer baccalaureate- and associate-degree programs. The curricular offerings are organized into four divisions: Humanities, Sciences, Social Sciences, and Business Administration. Major subjects for degree programs are presently limited to general business, psychology, and social science.

The college is open to members of all the Armed Forces on active duty and their dependents, Department of the Air Force civilian employees, active participants in the Air Force Reserve program, and veterans entitled to the benefits of Public Laws 894 and 550 (GI Bill of Rights).

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REDESIGNATED

Effective September 1, Holloman Air Development Center was redesignated Air Force Missile Development Center. Mailing address is Holloman Air Force Base, New Mexico.

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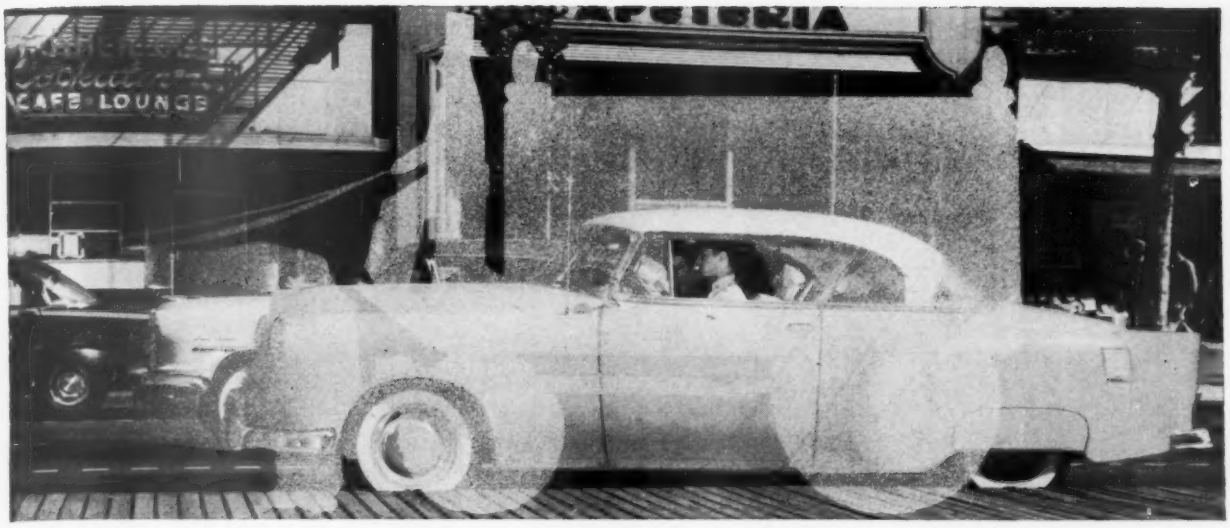
TO THE SALT MINES

Air Materiel Command has announced entry into the final stages of its program for testing the storage of jet fuel in salt caverns.

First stage of the testing program involved use of a 300,000-barrel capacity salt-strata storage terminal near McPherson, Kans. The cavern was thoroughly flushed prior to pumping JP-4 fuel into the natural container. By pipeline, the fuel was then moved to Schilling AFB, Kans., for use in assigned aircraft. Repeated tests have proven that salt is insoluble in, and therefore harmless to, the JP-4.

Based on the success achieved with this fuel, JP-5 is now being tested in a 50,000-barrel cavern in precisely the same manner. Assuming no difficulties are encountered, the USAF will have a proven method for storage of jet fuel in any available area throughout the world in which salt strata are located.

Adoption of this storage method will provide increased economy, decreased vulnerability to hostile attack, and virtually unlimited storage facilities.



ARE YOU DRIVING A HEARSE?

by M/Sgt. Hal Bamford

IF THE entire tactical group personnel of an Air Force fighter wing were wiped out, the event would make headlines across the Nation.

Let's assume that through carelessness of its personnel this entire wing was inactivated for two months; or, that over a period of a year, the complete personnel force received an average of three hospitalizing injuries each; or, suppose half the aircraft assigned to the tactical unit were washed out through accidents.

A figment of the imagination? In collective form, yes. But the facts contained in this fanciful supposition are very real.

Within the next 15 hours a member of the Air Force will die in a privately owned vehicle accident—a total which exceeded 600 last year, almost the equivalent of the personnel force of one entire fighter group.

More than 5,500 airmen will suffer from hospitalizing injuries and nearly 125,000 man-days will be lost this year if past averages prevail. Cost to the government will be approximately $24.5 million, enough to equip an F-100 group with more than half its aircraft.

Considered piecemeal the figures are shocking enough; when grouped together they become downright frightening.

These are statistics that the Office of the Assistant for Ground Safety, DCS/P, has compiled during the past year. Col. Will L. Tubbs, USAF retired, the assistant, points out, "that from facts documented over a period of years we can virtually predict who the next victim will be and the manner in which death will come."

For example, the odds are better than even that the victim will be below noncommissioned officer grade, less than 25 years of age, and driving his car on open, straight, dry roadway in good weather and in a rural or suburban area. In all probability he will die within 25 miles of his home station by collision with a fixed object such as a tree or telephone pole.

If you don't fit any of these categories, don't feel that you're home free. If you drive a car, you're grist for the traffic-statistics mill. In the last two years not a single grade in the United States Air Force, with the exception of general officers, has been exempt from the growing list of USAF personnel traffic fatalities. Every enlisted, warrant, and officer grade, as well as cadets, with the previously noted exception, have had names inscribed on this startling list which in 1956 alone accounted for 612 death notices.

Statistics don't tell the whole story but they indicate direction and scope. Normally, they're the driest subject in the world, but when they actually predict the probability of death, statistics take on an added importance that should make everyone sit up and take notice.

With the advent of summer months, the resultant lengthening of daylight hours, increase in vacation travel, and desire to "get away from it all" on weekends, the frequency of accidents bounds alarmingly upwards. Midwinter vacations cause a similar jump.

The accompanying box outlines the when, where, and how of the majority of vehicular accidents. Let's take a more searching look at some of the facts.

You'll note that driving too fast for existing conditions and speeding are listed among the major accident cause factors. Colonel Tubbs is quick to point out that these two phrases are not interchangeable. "Speeding," he explains, "simply means exceeding the posted limits. Driving too fast for existing conditions refers specifically to the condition of the road."

A speed of as little as 20 miles per hour could be too fast for existing conditions in fog, heavy rain, snow, or even in clear weather if on icy roadways. By the same token, the mechanical condition of your car can well be a contributing factor to "existing conditions."

By the same reasoning, use of intoxicants does not necessarily mean drunken driving. A single beer can be so classed. In more than a quarter of all accidents on the nation's highways, past records disclose, use of intoxicants has been a contributing factor.

Despite the progress that has been made in the past few years, the picture is still grim. However, great strides have been made in improving the overall situation. In the last two years, the frequency of both deaths and lost-time accidents have steadily declined.

A concerted effort is being made to continue the improvement and make further gains in the overall record. While there is no cure-all for traffic accidents and deaths, the correction of driving deficiencies—improvement of knowledge, habits, and skills, and education in the areas which produce the most accidents—is certainly a giant step in the right direction.

Colonel Tubbs points out that where the Air Force has control over the licensing of military-vehicle operators a marked decrease from 1.41 to .84 accidents per 100,000 miles resulted in the period from 1952-56. These figures are not cited as a recommendation for USAF control of drivers' licenses for civilian autos. However, they are indicative of what proper driver education can accomplish. Programs designed to assist in attaining these ends are currently being developed within the Air Force.

In the case of the vehicle itself, numerous bases have adopted the periodic mechanical inspection, which has proven so successful in many states, as a prerequisite to issuance of a base tag.

Three major categories of training are now being offered for military drivers of nonmilitary vehicles. The first, for beginners, involves 30 hours of classroom instruction and an additional 8 hours behind-the-wheel guidance.

When you start talking in terms of money to a military man, you strike a responsive chord. For years insurance rates for persons in the below-25 age group have been higher than for any other. The value of this training is manifested through the promise of reduced rates from insurance companies for airmen who successfully complete the training offered. Facts compiled by the National Safety Council, where such training has been implemented, conclusively prove its value.

The second type of training is remedial, designed for persons who have received tickets for moving violations, or have been involved in accidents. It consists of 5 to 10 hours classroom instruction on local traffic laws, accident causes, and other appropriate subjects.

Recently, a third course has been instituted which directs 10 hours' mandatory driving training for all Air Force personnel below age 25. This age group is the most accident-prone group both in the Air Force and the Nation as a whole.

You can't argue with the fact that the majority of fatal accidents fall within two specific groups in the USAF—those under 25, and airmen first, second, and third classes. They definitely overlap, but are not the lone offenders.

The hard fact remains that more than 400,000 airmen fall within these categories, and correction or improvement of their driving faults is going to reflect favorably on the overall record.

There's an old story that starts, "For want of a nail, a shoe was lost," and proceeds to the fall of a kingdom. Safety is this type of major problem, and a costly one. For each accident and every dollar lost, we're one step further away from the completion of our mission.

When the "nail" reaches the proportions of $24.5 million annually, it becomes a major step along the road to scrubbing one fighter group, and the equivalent loss of a "kingdom" in combat capability. ★

The United States Air Force lost 612 members in privately owned motor vehicle accidents in 1956. The facts that surround these deaths follow a definite pattern. Knowledge of these facts may help you avoid a fatal accident.

Charts compiled over years indicate the periods, places, and conditions most conducive to fatalities. Avoiding such conditions will not necessarily save your life—but it may help.

WHEN—

Between midnight Friday and 2:00 a.m. Sunday.

During summer months and midwinter holiday seasons.

WHERE—

Within 25 miles of the driver's home station.

In a rural or suburban area.

On open, straight, dry roadways in good weather conditions.

HOW—

Driving too fast for existing conditions.

Speeding.

Fatigue of the driver.

Use of intoxicants.

Striking a fixed object.

STAY ALERT
STAY ALIVE

What you don't Know CAN HURT YOU

Commander's Call—*A front seat at the old man's staff meeting where you get the ungarbled word on what's happening and why*

NOT LONG AGO small groups of airmen crowded into the control center, radar rooms, and underground storage pits at an Army Nike site. Others stood around staring at the arrowlike missiles poised in their launchers or peered into the powerful rocket motors in the assembly shed.

A few days earlier these airmen and soldiers, strangers until then, had teamed up during a practice alert. SAC planes on a routine training mission were the targets that they locked on and tracked, up to the point of actual firing. Now, some of these men traded questions and answers while the rest listened. This was no training session; it was Commander's Call for men of the 85th Air Division, and they were all learning how the other half of their Air Defense team lived and worked—and how their missions tied together in a common defense effort. It wasn't a typical Commander's Call, but it's the way one commander kept it informative and interesting, even for his nonoperating people.

Commander's Call is a vital part of what industry calls "Management - Employee Communications." By any name, the end result is the same. As a basic management tool, the idea behind Commander's Call has existed in the Armed Forces since Tom Paine wrote his "Crisis" papers at the request of George Washington. To date, it's the best way anyone has found to get the ungarbled word from the boss down to the working level.

Commander's Call is a peek at the "big picture." In effect, it gives every man in the Air Force a front seat at the old man's staff meeting. If proper use is made of the program, all of us will better understand unit, base, command, and Air Force missions.

If we know what these missions are, then we will understand why we spend our time doing whatever job we do, and will also better understand what is meant by terms like airpower, global strategy, combat readiness, cold war, and deterrent forces. It all fits like a jigsaw puzzle—you are part of it, and without you the picture isn't complete.

In some squadrons it's almost the only time the commander comes in direct contact with some of his men. They ask him questions about happenings they don't understand. He gets to know them and their problems better, and vice versa. The result is an outfit where everyone knows what he's doing, and why he's doing it.

Knowing what your job is and how to do it, however, is not enough. You must know "why." To do your best work, you must feel that what you are doing is worthwhile and has a purpose. Recent surveys by industry indicate conclusively that people who are well informed about their jobs actually produce better.

SAC recently made a survey of its people that shows a definite relationship between job satisfaction and Commander's Call. For instance, in squadrons where most people were satisfied with their jobs, 65 percent of the men thought they had a good Commander's Call. Opinions were evenly divided on which was more beneficial: films sent out by USAF, or verbal career-type information about housing, pay, education, medicare, and survivor benefits explained by the squadron commander. Morale and job satisfaction were lowest in squadrons where men got most of their information—or misinformation—from other sources.

There are numerous ways of handling the monthly formation. The commander of the 376th Air Refueling Squadron at Barksdale AFB, La., takes a strong personal interest

in his program, and regularly delivers a part of it. His adjutant, acting as squadron ISO, arranges for films, researches, and plans the program. The commander delivers it to the men, and takes time out to recognize individual accomplishments with proper awards.

A typical recent 376th meeting included poop on the current promotion cycle, what fields were frozen, and why. Outstanding airmen were complimented, new ones introduced. The commander then briefed his men on improved off-duty base facilities. After a question-and-answer session, he turned the program over to experts on reenlistment and dependents assistance, concluding with an Air Force film. The whole show lasted a little more than an hour, and covered subjects that interested everyone. This is considered an ideal Commander's Call.

At Ardmore AFB, Okla., the commander of the 463rd Troop Carrier Group spent part of his time talking about the progress of the housing project going up on the base. It took him only a few minutes to explain the situation to everyone's satisfaction, but more than two hours to gather the facts he presented. He spent eight hours preparing the information on the new Lockheed C-130 *Hercules* turboprop for his group—the first operational unit to receive the new transport. The men asked for more information on the maintenance and flying problems and got it at later calls.

Because of one commander's emphasis on educational opportunities available in a nearby city, more than half the men in his squadron have enrolled. Beside making themselves more valuable to the Air Force, these men are meeting and making new friends for themselves and the Air Force in the local community. The educational benefits will be reflected at promotion boards and when they retire.

A few months ago an airman was being interviewed for possible selection as Airman of the Month at an air defense base. Prestige came with the honor, and it undoubtedly would have helped him toward later promotions. He was asked a simple question—one that had been answered at the only Commander's Call he had not attended—about the area of responsibility of his command. He didn't know the answer.

Commander's Call is not confined to helping the boss keep in contact with his men or answering individual questions. There is an important, though broader and less direct, result. Most civilians not directly associated with the Air Force have learned much of what they know about the Air Force from some airman or his family. An airman on furlough IS the Air Force to his family and their neighbors. He's the man who is supposed to know from personal experience, and who should be able to speak with authority on the Air Force role in national defense. Civilians are vitally interested in our defense status, but we who live so close to the Air Force sometimes overlook it. It is imperative that individual airmen know the score so they can talk with the authority expected of them and intelligently answer the many questions their friends will ask.

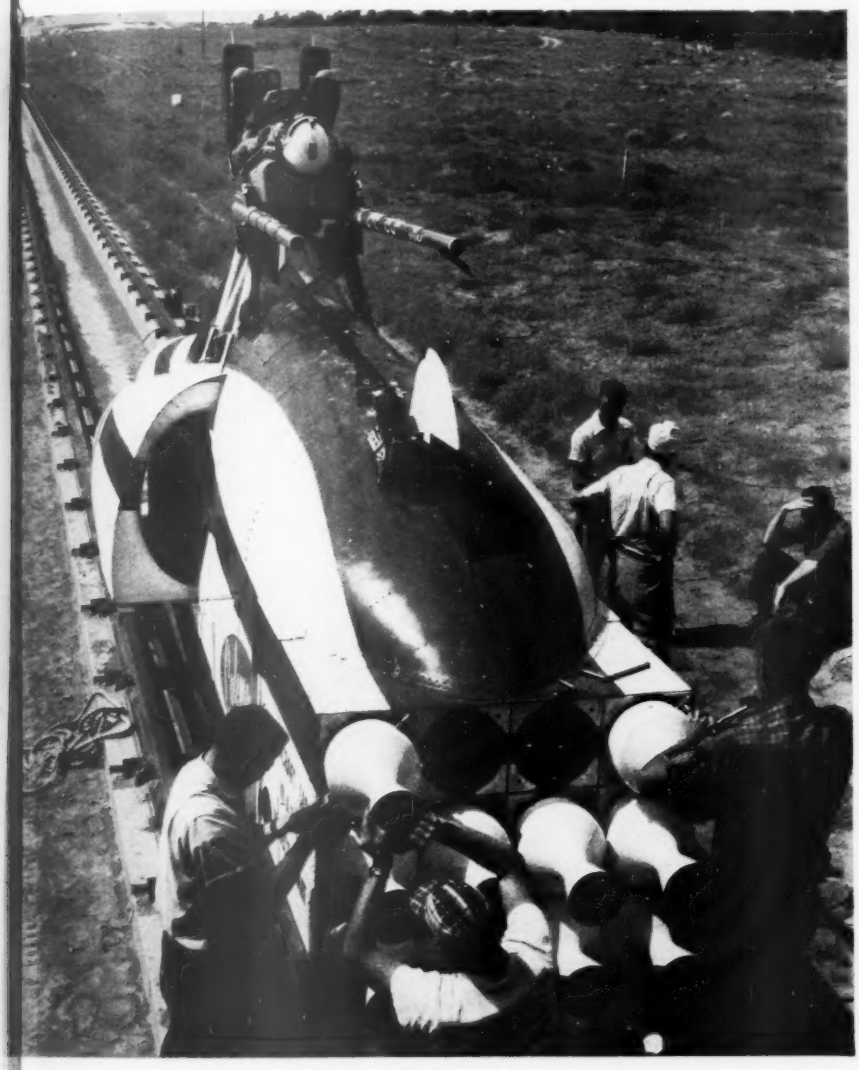
A high-level committee was established three years ago to overhaul the Air Force's public relations structure. This was done to follow the lead of industry in evoking public relations as a potent factor in management and leadership. Through studies made by the Air University it was found that there is one rule common in all leadership studies: "A leader to be effective must be seen and heard by the people he leads." This idea planted the seed for our present Commander's Call program.

As former Secretary of the Air Force Donald A. Quarles recently put it: ". . . We have to realize that explaining our business to our own people in this country, explaining our business to our allies, and gradually perhaps, explaining our business a bit to other nations, is fundamental in this cold war situation."

Looked at in this light, Commander's Call is as much a part of our job in the day-by-day defense of this country as firing a missile, flying a bomber, or ordering supplies in a shooting war. ★

Army Capt. C. C. White, commander of a Maryland Nike Battery, explains to airmen of ADC's 85th Air Division how the Army's mission dovetails with theirs in air defense of the Nation's Capital.

TECHNIQUES



ANTHROPOMORPHIC DUMMY TESTS

With the advent of supersonic bombers new problems now face Air Force scientists, not the least of which is ejection of multiple-member crews from faster-than-sound aircraft.

Tests now being conducted at China Lake, Calif., Supersonic Naval Ordnance Research Track by Convair and USAF test crews are seeking a solution to this newest ejection problem.

Anthropomorphic dummies—having moving joints and closely resembling the human body—are being ejected from the nose section of a supersonic Convair B-58 *Hustler*. The three-dummy crew rides in tandem in the forward portion of the needlelike fuselage.

The canopy is ejected first, followed by the seats, which are thrown high enough to clear the tail and slightly forward to ease the shock of rapid deceleration.

Data obtained will indicate the rate of acceleration, rate of spinning, and trajectory of the body after ejection. Instruments are attached to the dummies to record this information and cameras, on the sled-mounted nose section and along the tracks, aid in determining the results.

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HUSTLER SILICONES

Silicones, manmade substances similar to rubber but superior in wearing qualities for many jobs, have been used on aircraft for many years, but until the Convair B-58 *Hustler's* debut they were never specified as part of the original design.

On the *Hustler*, silicones are used as an inflatable seal to maintain cabin pressure; as O-rings around every bolt and screw in the fuel areas; as covering for all electrical wiring; and to protect all terminal connections.

They are also used on the B-58 as molded grommets (eyelets) to protect lines that pass through bulkheads and spars from wear by friction, and even for the in-flight feeding tubes used to supply liquids to crew members.

EJECTION SEAT TESTED

A new type of ejection seat for supersonic planes is being tested and developed for the Air Force by the Industry Crew Escape Systems Committee.

The purpose is to produce a seat that will minimize or eliminate the end-over-end tumbling, whirling, and yawing gyrations that occur when it is plunged into a supersonic airstream. These things, coupled with large decelerations, may kill or seriously injure a pilot, or produce fatal nausea.

Stabilization is achieved in the "B" seat by a system of twin telescoping booms. The booms, mounted on the back of the seat in four sections, are extended by an internal powder charge. The tip of the fourth section contains a spring-actuated folding fin that pops out upon extension.

Before ejection, the seat and pilot are raised out of the cockpit by an explosive charge, and rotated backward 90 degrees to a supine position. An automatic igniter fires the rocket engine which launches the seat.

At Hurricane Mesa, Utah, using a Convair F-102 *Delta Dagger* cockpit mounted on a sled (see photograph) traveling at supersonic speed, a seat and lifelike dummy were successfully tested. Results showed that they entered the airstream at only 10 "Gs"—much less than encountered in other seats. Decelerations were quite low, and average chest pressure was exactly half that experienced in upright ejections.

Then-and-now photo depicts Gatling gun of Civil War days and modern Vulcan, a refinement of the same principle.

VULCAN-IZED

A 30 mm. version of the 20 mm. Vulcan machinegun now being used on the supersonic Lockheed F-104A *Starfighter* shoots a 50 percent larger projectile with three times more explosive power.

Developed for the USAF under an Army contract by General Electric engineers of the Missile and Ordnance Systems Department, Burlington, Vt., the new gun weighs about the same as its forerunner, approximately 300 pounds. Rate of fire of both guns is classified.

In operation it is similar to the famous Gatling gun invented by Richard Gatling in 1862. Computer studies have shown that the hydraulic or electric power required to drive the gun will be approximately equal to that of the 20 mm. version. Both steel and brass rounds have been fired successfully.

The Vulcan was designed primarily to overcome temperature, speed, and altitude problems that make standard machineguns obsolete on supersonic aircraft.

HOW HIGH?

ARDC, in cooperation with Litton Industries, Inc., Beverly Hills, Calif., has placed in operation a new altitude-simulator laboratory.

The 15-foot long, eight-foot diameter, "high vacuum" chamber is capable of simulating conditions which would be found as high as 95 miles above the earth. Studies are being conducted on reaction of materials and weapon system parts at these extreme altitudes.

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HERE I AM

TACAN, an automatic-position indicator for aircraft, is expected to scratch the time-consuming radio fix of the busy AACS ground-radio station operator's schedule in the near future. Using TACAN, the pilot does not tie up the services of two or more man-operated ground stations in obtaining a fix.

The device will be included in many aircraft soon to roll off production lines, and some current types can be modified to accommodate it, Hq, Airways and Air Communications Systems reports.

The instrument, which derives its name from a contraction of the words Tactical Air Navigation, works hand-in-hand with a fixed ground beacon that transmits continual radio signals. These are picked up in the aircraft and translated by the instrument into a reading of the plane's position.

More than 100 TACAN installations are in operation across the United States, Alaska, and the North East. Reports from other overseas areas indicate installations are presently being made by AACS units in the Far East and USAFE. Operating range is estimated at 200 miles.

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←ELECTRONIC ACCURACY

An electronic altimeter, accurate to within 40 feet at 60,000 feet altitude, has been devised by Wright Air Development Center, Wright-Patterson AFB, Ohio. Twelve service test models, manufactured by the Radio Corporation of America, Camden, N. J., have successfully passed a year of flight testing.

The new altimeter determines an aircraft's altitude by sending a radar signal to the ground and measuring the time it takes to return. This time is then transposed into feet and servomechanisms show the altitude on a standard altimeter dial. Unlike present electronic altimeters which require an operator to read a scope and interpret that reading, the new type gives an immediate reading and amplifiers can put the reading on as many as three dials in the aircraft simultaneously.

AIR FORCE INGENUITY

If it creaks a little, they'll grease it. If it needs new stuff, they'll invent it. Ingenuity may not be as glamorous as flying a B-52 or a Century Series fighter, but it is important to the Air Force effort.

by M/Sgt. Edison T. Blair

EXCEPT for the name, there's nothing ladylike about the typhoons that wind up for days before they descend on Okinawa every year with jealous fury, each trying to outdamage the other.

Air Force personnel use tent pegs to anchor aircraft against these furious storms. They used to anchor them so well that it was next to impossible to get the pegs back out of the ground in usable condition, and for lack of a peg a plane could be lost in the very next blow. Then S/Sgt. C. T. Hamlin solved that problem by inventing a tent-peg puller that not only lifts out the pegs intact, but makes the job quicker and easier.

During World War II and the more recent Korean fighting, the mechanical ingenuity of the American GI proved an important factor in keeping the mechanical power of the United States in top fighting trim in spite of the enemy, late shipments, local shortages, and all the other delays that occur in even the most efficient organizations.

It would take an encyclopedia to list all the improvisations thought up by airmen since we started using airplanes—inventions that were mothered by the necessity of the moment and served their purpose. But ingenuity didn't stop when the shooting ended.

Month after month airmen come up with real bread-and-butter suggestions that have far-reaching and lasting benefits. They run the gamut from tent-peg pullers and paperwork simplification through management ideas and tactical maneuvers to major modification of our most advanced aircraft. Their ideas are saving man-hours, dollars, and lives.

Take, for instance, the fighter-interceptor modification idea thought up by A/1C Kenneth Schlicting at a fighter base in Japan.

An interceptor pilot uses the autopilot during radar runs, especially when "locking on" the target. The automatic-pitch-synchronization circuit keeps his plane in the same pitch attitude (nose up or down) while this is going on, then the pilot normally switches the circuit off. But if the pitch-synchronization circuit is out-of-order the next time it is switched in, it will instantly and violently bring the aircraft back to the same pitch attitude it was in at the time of failure. At high speeds this could be disastrous, and aircraft statistics disclose that several planes have crashed from just such a malfunction, although the pilots ejected successfully.

Airman Schlicting's modification amounts to adding three resistors, a meter, and a switch relay, and replacing one other relay in the little black box that is the heart of the pitch-synchronization circuit. It costs less than $10, and effectively locks the switch in the "off" position if the circuit isn't operating properly.

Before formally making his suggestion, Schlicting bench-tested his brainchild thoroughly with the help of a manufacturer's representative who proved the effectiveness of his modification.

Schlicting backed up his idea with excerpts from a technical order, a schematic wiring diagram, and detailed instruction for making the modification. He included statements from six pilots who had experienced violent maneuvers when they switched in the inoperative circuit. The whole document was sent to the Management Engineering Branch of Manpower and Organization, DCS/Operations, Headquarters, USAF.

"The defenses of the United States and the safety of our airmen are never good enough," he said. He feels that everybody ought to do what they can to help improve both.

Airman Schlicting earned $25 for his copyrighted suggestion.

Since 1951 the Air Force has had a Management Improvement Program, birddogged by the M&O people. One of the objectives is to flush out of the bushes as many good, solid suggestions, inventions, and modifications as possible.

To encourage the program, nearly every major command has set up some sort of monetary-award system for such suggestions from military personnel. The cash comes from welfare or other nonappropriated funds normally earmarked for recreation, libraries, and service clubs. Usually, a suggestion may win at three echelons: base, subcommand, and command levels. Some commands restrict cash awards to airmen only, and reward officers with letters of appreciation, airplane-model ashtrays, or some other symbol of appreciation.

During a three-month period last year, 121 ideas submitted under the Management Improvement Program were considered by suggestion committees from base level to Headquarters, USAF. All of them went to the staff agency with primary interest for study. Fifty were accepted almost immediately, which means they were published in the USAF Suggestion Digest or disseminated by other means so other units could begin to use them. (That's Tech Order 00-55-2 if you're looking for a better way to do your job.) Fifty-one were rejected, mostly because they were peculiar to the needs of only one command. The remaining 20 suggestions have since been adopted, rejected, or are still under study.

Still under study, for instance, is a suggestion from Guam sent in by an airman second class. This man operates a mobile liquid-oxygen (Lox) plant which is more explosive than a powder keg. He designed a fire extinguishing system with nozzles at points where oily matter from the machinery might come in contact with the Lox and cause spontaneous combustion.

Aircraft mechanics account for about 37 percent of the suggestions that reach Headquarters, USAF. T/Sgt. Ignatius L. Alney, Jr., at Castle AFB, Calif., noticed that the bomb salvo switch on the Boeing B-52 *Stratofortress* could be tripped accidentally during bomb-loading operations. Realizing what this could do to the crew and an airplane costing over $7 million, he spent an hour fashioning a five square inch metal cover to eliminate the hazard. His cover is working fine. Meanwhile, the Boeing Airplane Company was already taking action on a cover as a result of an unsatisfactory report. The sergeant collected a $25 cash award from the base welfare fund for his suggestion.

When a Boeing B-47 *Stratojet* nuzzles up to the flying boom of a KC-97 for a mid-air refueling, it must be throttled back close to stalling speed in order to stay in position. Major accidents have resulted from stalling. Formerly, the only way a pilot could tell when this was about to happen was by the engine r.p.m. and tailpipe temperature indications. M/Sgt. Joe Breaux of Davis-Monthan AFB, Arizona, installed a differential pressure switch on the engine's compressor, and wired it to a red light on the instrument panel where the warning cannot be overlooked. The improvement cost $200; the plane it might save costs about $2 million. The savings in crew members' lives is incalculable.

McGuire AFB, N.J., had a warehouse full of handtools and other small items awaiting issue. Corrosion and rust gave supplyman John Mulligan a never-ending battle. So T/Sgt. Mulligan built a dolly that carries a tank of preservative, several trays, and a workbench. By pushing it from bin to bin, the tools can be easily cleaned, dipped in corrosion preventative, and returned to the bins in short order.

Big Douglas C-74 *Globemaster Is*, forerunner of the giant Douglas C-124 *Globemaster IIs*, played an important role in transporting supplies during the Korean airlift. To speed up maintenance, a sergeant modified the ignition-timing light with multi-wired cables and a couple of selector switches. His modification eliminated two of the three

stages in the old timing tests, cut man-hours by four-fifths, and made it possible to run the complex timing operation on a hot engine by grounding the timing light. Some sort of timing light has been built by maintenance men for nearly every one of our prop-driven aircraft.

It used to take two men to adjust the valves in a piston engine. One man pulled the propeller through, while another man in the engine nacelle tried to read an eight-inch engine-timing disc installed on the fuel-pump drive after the pump was removed. But at Vance AFB, Okla., CWO Leith C. Morgan and M/Sgt. Donald M. Woods invented a valve-timing protractor with an easy-to-read, three-foot face, and a pendulumlike indicator. It mounts on the prop dome and one man can now do the job in half the time without removing the fuel pump.

T/Sgt. Milton F. Mior, 68th Field Maintenance Squadron, Lake Charles AFB, La., designed an improved timing light to synchronize the Bendix Engine Analyzer Breaker Assembly, and earned himself $50 from the suggestion committee's funds.

A simple little piece of tape over the paper fastener on the last page of personnel records keeps the fastener in place and, most important, prevents it from damaging other record jackets in the file. S/Sgt. Carl Warfield sent the idea in from Youngstown Municipal Airport, Ohio.

During the Korean conflict, a medical officer at a Far East air-evacuation staging hospital devised a combination litter and oxygen-tank carrier to move patients in an oxygen tent. He mounted the oxygen bottle in a bracket between the litter and a wheeled base, so that the whole thing could be moved about by one attendant. This same man modified a physiotherapy table with adjustable flaps on which the patient could rest his head, arms, and legs while he was being exercised.

Then there was the maintenance warrant officer who grew tired of jet jockeys overshooting the runway on their return from MIG Alley and busting up his airplanes. He stretched a cable network across the end of the runway and fastened it to some anchor chains scrapped by the Navy. This barrier worked so effectively in minimizing damage to the plane and saving the necks of hard-to-come-by fighter pilots that the idea is now used Air Force-wide. It's called the Davis Barrier, in honor of the inventor.

Our fighter-bomber pilots on ground-support missions in Korea demonstrated ingenuity when they devised new aerial tactics. Red troops hid on the steep hillsides of deep valleys to escape strafing runs. But our pilots got to them. Their refined toss-bombing techniques that made the bombs "climb the hills" after the Commies are now a standard air maneuver, and considered one of the best ways for a jet aircraft to lay an atomic egg and get away safely.

M/Sgt. Earl V. Ward, Eglin AFB, Fla., has won several awards for his ingenuity. A cameraman with the Air Force Operational Test Center, Ward's most recent check for $25 was for building an aerial camera mount. The mount accommodates both still and motion picture cameras, and can be installed without tools from tiedowns of parachute harness snaps and turnbuckles. A sliding top with rollers makes it more adjustable than the old tripod type, and it is much more stable.

Last year he helped design an elevator to get heavy photo gear to the top of a camera tower to film a firepower demonstration. His other invention was a lightweight, adjustable, quick-releasing camera mount for use in Lockheed T-33 *Shooting Star* and Lockheed F-94 *Starfire* aircraft. This one replaced an old permanent-type mount that made it virtually impossible for a photographer to eject in case of an emergency.

Another suggestion in the optical field earned a SAC master sergeant $25 at base level, a three-day pass, a commendation letter, and another $50 cash award when it was adopted command-wide. An integral part of the crash firefighter's man-from-Mars garb is a heat-resistant glass facepiece. But the foam that smothers the fire does an equally good job of blanketing the facepiece and blinding the fireman. M/Sgt. Vernon Teel of Ramey AFB, Puerto Rico, made a "windshield wiper" that slides across the facepiece on a wire track. The handle is big enough for the fireman to grasp, even with his clumsy asbestos-gloved hands.

A safety-conscious airman at Patrick AFB, Fla., built a "visual" GCA practice unit out of scrap aluminum that mounts on the bumper of a jeep. With a limited knowledge of trigonometry and a lot of his spare time, he installed six vertical and three horizontal cross hairs across the rectangular frame. With the frame mounted on a jeep equipped with a two-way radio command set and parked at the end of a runway, he "sights" the plane from a grease-pencil reference mark on the windshield through the cross hairs, and talks the pilot down. It's not quite the same as a real GCA unit, but serves the pilots at Patrick where they have no GCA. At our last report, A/1C Marion D. Hudson, who built the gadget, had "checked out" 255 pilots on mock GCA landings.

Statistics show it is not unusual for the Air Force to save $100,000 a year because airmen such as these have used their heads to find more efficient ways to get things done.

Machines have been improved by their users from the time man first used a pole to pry a boulder from his path, until the Air Force launched the most recent missile test vehicle from Patrick AFB. Perhaps the defenses of the United States are never "good enough," like Airman Schlicting said. But, so long as there are airmen who have never seen a system or machine that they didn't think needed improving, our defenses will get better.

And these airmen won't wait for necessity to kick them in the pants. ★

Base Exchanges throughout the Air Force have established an "Airman's Bookshelf" and are offering current air books at considerable savings.

USAF Book Program

by Capt. James F. Sunderman

Within the lifetime of one generation the world has witnessed a revolution in the sky, spanning from the 30-mph "stick-and-wire crate" to the supersonic jet. The first half century of powered flight was an era of ingenious creation and incredible achievement. Man pioneered from the rims of the earth to the fringes of outer space. He described across the skies broad avenues that connect all races into a dynamic community and enable undreamed-of exchanges of culture, ideas, and peoples. His aerial highways have shaped the course of human events. No other single conquest in history can match in accomplishment and significance the conquest of the air.

The story of this achievement is largely the story of the USAF. It is a saga of supreme endeavor, a continuing drama of bold vision, sacrifice, adventure, and heroic action. Ironically, the evolution of flight has unfolded with such suddenness that book literature of the air, to record the factual progress and translate facts into meaning and understanding, has not kept pace.

Airmen have been too preoccupied with the technical aspects of their trade to heed the importance of a book literature of aviation. The public, marveling at the unbelievable accomplishments in the sky, has been given little opportunity to understand what they were all about.

Several years ago the Air Force, rightfully alarmed over the slow development of an airpower literature, devised a plan to spur the writing and publication of professional and popular books on the air. The plan, embodied in the USAF Book Program, was implemented in September 1954. Since then some 90 air books have appeared with over 65 more due to be published within the next 18 months. The Book Program has initiated a literary movement among commercial publishers and writers to transcribe the entire story of the conquest of the air into a library of air books that truly reflects the realities of the air age in which we live.

The program is designed to bring together an idea, an author, and a publisher. It guarantees many forms of assistance to any military or civilian writer with an acceptable book proposal on aviation, airpower, or the USAF. After the book is published it helps the publisher by bringing the book to the attention of the Air Force family worldwide and making it available for purchase wherever Air Force people are located.

In scope the program embraces an air literature in the broadest sense, from the scholarly and academic writings to air fiction, including history, technical works, biography, memoirs, personal narratives, operational studies, air monographs, edited collections, etc. No provision or funds exist for official purchase of air books or commitment of appropriated funds for preparation or publication. The operation is based strictly on private preparation and commercial publication.

One of the important phases of the program consists of reviewing and marketing air books within the Air Force, worldwide. Editors of Air Force base newspapers and official periodicals post reviews and publication notices of new air books. Unofficial publications and commercial air magazines feature reviews of air books in each issue. Many official newsletters, bulletins, and pamphlets of all command echelons periodically include information on professional airpower books currently appearing.

For the airman desiring to build his own library of professional air literature, air books are available through various sources at reduced rates.

The Air University Book Department, Maxwell AFB, Ala., conducts a mail order facility. AFR 176-6 identifies the following categories eligible for mail order privileges: active duty personnel, Air Force Reserve and AFROTC personnel, Air National Guardsmen, and students and faculties at Air Force schools. An order must be accompanied by a certificate of military status. Books will be mailed, along with a bill for payment. A complete listing of these volumes can be obtained by writing to the Book Department.

Recently Hq USAF and the Army-Air Force Exchange Hq requested that all Air Force Base Exchanges set up an "Airman's Bookshelf" to retail professional and popular airpower books, both paperback and hard cover. Scores of BXs have established a Bookshelf and are offering current air books. On or about November 1 the Air Force Association will announce the establishment of an Airpower Book Club and professional reading service. Airmen can take advantage of these opportunities to build their own personal library of books on their profession.

KING-SIZE PROPULSION

Earlier this month, in Cleveland, Ohio, the National Advisory Committee for Aeronautics played host to a group of the Nation's leading scientists, educators and writers at their Lewis Laboratory.

One of three NACA labs which are opened for a select audience on a rotating triennial basis, Lewis Lab is concerned directly with experimental propulsion systems—turbojet, ramjet, rocket, and nuclear.

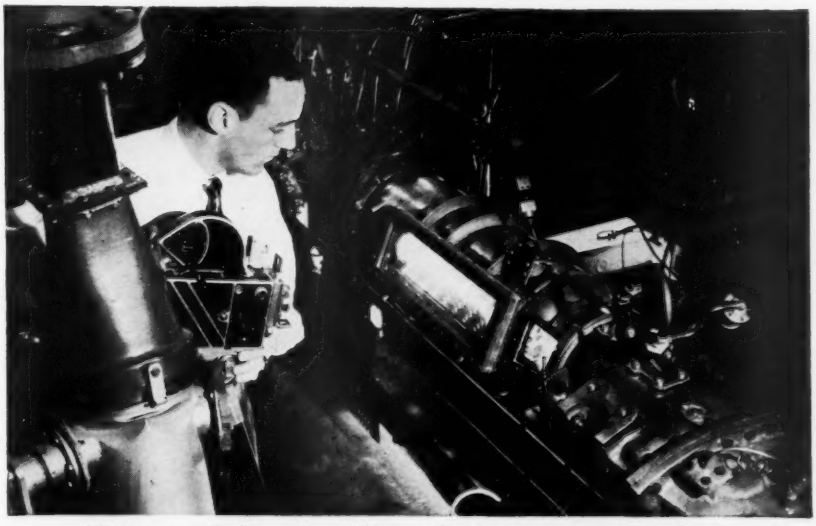
Operational altitudes of 150 miles and speeds in excess of 25,000 m.p.h. were among future possibilities discussed during the tour. Strangely enough, contrary to the majority of present day opinion concerning a declining need for aircrews, these figures were advanced for manned space satellites.

Among top attention-getters was a detailed discussion of high energy aircraft fuels ranging from boron-hydrogen compounds, reputed to possess nearly double the thrust capabilities of present fuels, to ionic drive. Power sources included solar energy and nuclear reaction.

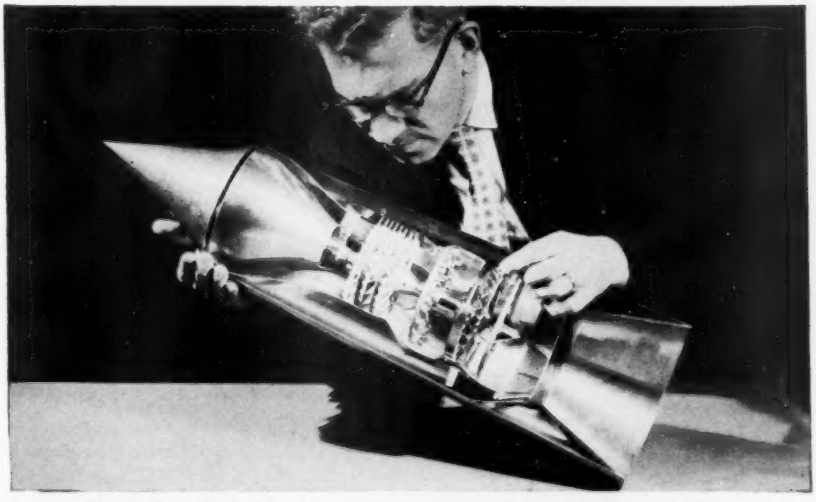
Closer to the realm of present day working hardware was the talk centering around turbojet engines. Previous conclusions had placed their top speed capabilities at Mach 2.5. Lewis scientists now express confidence that a Mach 4 (2,600 m.p.h. at altitude) powerplant could successfully be constructed and placed in operation.

The Lewis Flight Propulsion Lab, named for the late Dr. George Lewis, first director of NACA, was established in 1941 adjacent to Hopkins Airport. It boasts a staff of 2,700 professional and technical employees, and is headed by Dr. Edward R. Sharp. ★

A small wheel is jet-operated by means of an ion-propulsion model.



High energy fuels are burned in combustion test apparatus at Lewis.



Theoretical Mach 4 turbojet, based on a composite of advanced ideas.

Personal Affairs Counseling—Mrs. Martha Armstrong, personal affairs counselor at Griffis AFB, N.Y., assists a newly arrived airman in preparing VA forms to cancel premium waivers on his National Service Life Insurance.

Assistance Available to Airmen and Dependents

ALL YOU HAVE TO DO IS ASK

The Air Force has long recognized that a man who is worried about his personal problems cannot be an effective member of a military organization. That's one of the reasons why when you or your family run into personal trouble you'll find a team of experts available for information, advice, and/or assistance.

You don't have to "go through channels" to seek aid from these people. Your squadron commander or any other member of the team will be glad to help or direct you to the proper person for assistance.

This team includes the personal affairs officer, chaplain, legal assistance officer, and supporting agencies like the Air Force Aid Society, American Red Cross, and local welfare agencies. They are ready to help you—all you have to do is ask.

Personal Affairs Officer

In addition to serving as a general "information center," he can give you and your dependents guidance on travel and housing conditions, both here and overseas; allotments and other financial matters; and laws and regulations concerning your welfare—medicare, survivors' benefits, retirement, veterans' rights, and naturalization. He can also advise you on comparative values of commercial life insurance and estate planning.

Another major service rendered by your personal affairs officer is responsibility for the Dependents Assistance Program, which is designed to cover nearly any situation that might confront an Air Force dependent. Here, as in other instances, other team members provide specialized assistance.

Your Chaplain

A friend whom you can go to for guidance, direction, and help, your dealings with your chaplain will be on a confidential basis. In your initial interview he will tell you of his program for you and your family, and encourage you to participate in both base and community religious services. If you have marital problems he will be an impartial and experienced arbitrator.

Guidance and assistance on job and/or personal adjustment problems, compassionate transfers, and hardship discharges are offered by your chaplain. In cases of need he will call on the Air Force Aid Society, American Red Cross, or local welfare agencies to assist you, financially or otherwise.

Legal Assistance Officer

Legal problems arising from Federal and State taxation, adoption, insurance laws, automobile registration, contracts, and notes should be referred to your legal assistance officer. In addition, he can assist you in taking depositions, and the preparation of affidavits, and provide legal assistance on wills and estates, personal property, real property (sale and lease), personal injuries, and power of attorney.

He is a licensed attorney at law, and unless you give him permission to reveal them, he will keep your dealings with him completely confidential and no military authority can lawfully order him to disclose any of your business.

American Red Cross

Field directors of the American Red Cross frequently act as a link between the airman and his family back home. Through cooperation between ARC field directors, Air Force communications channels, and hometown ARC chapters, an airman can quickly get a health report on his sick mother. They will also find out why there hasn't been a letter from home; handle requests for emergency leaves; and often lend him money for an emergency.

Assistance to dependents with applications for government benefits, counseling on personal and family problems, and referral to other community sources of help is also provided. If you are hospitalized the American Red Cross will furnish you personal services.

Air Force Aid Society

Financial assistance for unforeseen emergencies is available to airmen and their dependents from the Air Force Aid Society in the form of noninterest-bearing loans or grants. This money is donated by Air Force members and held by the Aid Society for relieving the distress of Air Force personnel and their dependents.

Local assistance may be obtained for nonreceipt of pay or family allowances; medical, dental, and hospital expenses; payment of rent to prevent eviction or initially obtain housing; or purchase of emergency food supplies. It may also be given for expenses incidental to emergency leaves; assistance to dependents upon the death of Air Force personnel; limited assistance for funeral expenses; and emergency transportation of dependents.

Scholarship assistance is available upon application to the director of the Air Force Aid Society for dependent children of Air Force personnel to obtain education above high-school level.

Other Assistance Available

It is a well-known fact that a man who is not in top physical condition can't be an effective member of a military organization; nor can he function effectively if a member of his family is sick. Your medical officer is available to you and your dependents in case of illness, and should be consulted when necessary.

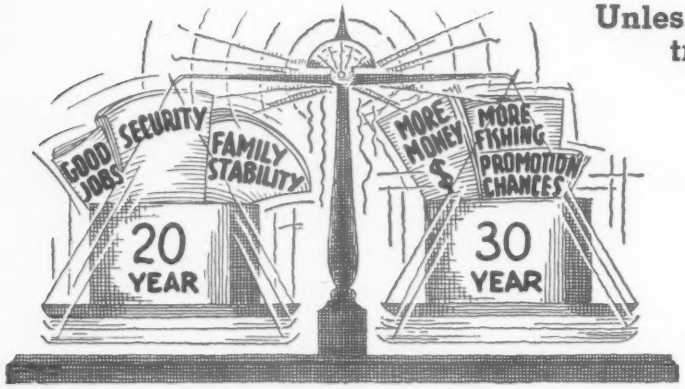
Should an airman desire to continue his education while in the service, his education services officer will assist him in planning the best way to meet his education objectives; advise him on requirements for promotion, qualifications for certain career fields and service schools, and civilian career requirements; and assist him in choosing one of the many educational plans available that fit his needs and background. However, this service is not available to dependents.

Teamwork

Not long ago, an airman stationed overseas approached his chaplain, completely upset because his wife at home was about to have a major operation. The chaplain sent the airman to his medical officer for an explanation of the operation and medication to relieve the airman's nervous tension. At the airman's request the chaplain contacted the American Red Cross field director and obtained information regarding the situation at home. On the basis of this information, the airman's squadron commander was able to provide him with an emergency leave, and the American Red Cross provided the necessary funds for the leave. Thanks to the new medicare act, the airman was spared major financial worries in connection with the operation.

Another airman, who had a wife and two children, had been under unexpected heavy expense as a result of his mother's death. He was unable to pay his rent or buy food for his family, and was facing eviction. He went to his legal assistance officer who advised him he could be evicted, and was referred to his personal affairs officer for guidance. The personal affairs officer, who was also the local representative of the Air Force Aid Society, arranged for a noninterest-bearing loan to pay the rent and buy food for his family, which saw him through the emergency. He later repaid the loan in small monthly payments.

These examples not only demonstrate teamwork, they also underscore the fact that "the Air Force takes care of its own." Remember that when assistance to airmen or dependents is required, "all you have to do is ask." ★



Unless you are prepared, retirement's treasure chest can be elusive.

the MAGIC 20

IF you are an average American male, you'll probably live to the ripe old age of 71.4 years. This is based upon the official life expectancy of a man who is 40—the average age of people who retire from the Air Force after 20 years of service.

This means you'll have 31.4 years to enjoy the pleasures of retired life. That's a long time, and a lot of fishing. So much in fact, that the golden life will probably get mighty tarnished before you've finished with it—unless you do some planning.

Whether this is your first hitch or the magic 20 is right around the next enlistment, or even if you haven't yet decided to be a career airman, *now* is the time to make plans.

The first decision to make is whether you're quitting at 20 or going for 30 years, or in between. Obviously it's an important decision, so don't overlook any factors. To make sure, start balancing your thinking scales with some weighty material from both sides of the 20 vs. 30 proposition.

Some Things Are Equal

Many benefits are yours regardless of whether you retire at 20 or 30.

Take the privileges you have of using base facilities. Essentially, they are the same privileges you enjoy on active duty—membership in the open messes; use of commissaries, exchanges, theaters, dependent schools; and so forth. Also, you and your family are eligible to travel on established routes of Military Sea Transport Service ships, and you can travel in the U.S. on Military Air Transport Service aircraft; both on a space-available basis—travel that would cost a civilian a sizable amount. (But can you afford it on a 20-year retirement?)

Along with increasing age come creaking joints and ailments you would sneer at during your youthful years. As a retired Air Force member, you and your family are authorized medical and dental care when facilities of the uniformed services are available. Important, however, is the fact that dependents of retired personnel are not eligible for civilian medical care under the Dependents' Medical Care Act of 1956. (P.L. 569, 84th Congress.)

It would take a book to cover all the ramifications of 20- and/or 30-year retirement benefits. In fact, the Air Force has published one; it's officially known as Air Force Pamphlet 34-4-3, Air Force Guide for Retirement, 31 Jan 57.

So Why Not 20?

It would appear that all that glitters *is* gold, but 20-year retirement has its drawbacks. Hammocks can become awfully boring to a man in the prime of life and after an active life in the Air Force, inactivity can turn you into a restless individual who often rues the day that he retired. This does not make for happy family relations. And then there is money.

Unless you started investing young and have an income of some sort outside your retirement paycheck, you will probably want to work so you'll be able to afford a few luxuries. Remember, you're only 40, and may still have kids in college.

If your retirement check won't cover all the bills, then you've got to find a job. Work? This is what you were doing before you retired: how long do you plan on working? It depends on a variety of family circumstances—whether it's a short haul until your children are self-supporting or whether you have to continue working until you're 65, the age at which you start drawing your Social Security. In the latter event, you'd be working for 25 more years. That's longer than you worked to earn the retirement you're finding so hard to enjoy.

Besides, when you retire at 20 years, *you're passing up more than $12,000*, based upon the grade of master sergeant (E-7). This is the actual cash difference in the amount of total retired pay you would receive by staying for 30 years, assuming you live to the average age.

Your income after 20 years represents an equity in a $57,311-policy, whereas the 30-year policy comes to $69,427. The $12,000 averages out to an invisible $100 per month increased equity which you can consider to be added to your active-duty paycheck for the years between 20 and 30. For example, at the end of 20 years' service your monthly retirement pay comes to $152.10, as compared with $251.55 for the 30-year term.

Now, how much money must you make each month in a civilian job to equal the paycheck you would receive if you stay on active duty for another 10 years?

As a master sergeant, your retirement pay at 20 years is $152.10 per

month. Your active-duty pay, figuring longevity at 26 years for an average, would be $462.30, including all allowances. Add to that the $100 monthly retirement *equity*, and you come to the following conclusion: to equal this active-duty pay and equity ($562.30) you would have to earn $410.20 per month—the difference between the $152.10 retirement check and the $562.30 active-duty pay and retirement equity.

Whether you can easily earn a $410.20 monthly salary depends upon a lot of things—your skills, training, the local labor market, and so forth. Just remember, starting salaries of $410.20 a month are hard to find, especially at age 40, so the question of whether you can locate a desirable position in civilian life is beset by uncertainties, regardless of your desire to work and the skills you possess.

By remaining on active duty, you and your family continue to be covered by the provisions of survivors' benefits. Retired, and working as a civilian, you get no such coverage unless you retired with a service-connected disability. You can, however, *take a reduction in your retired pay* to provide for your dependents through the Uniformed Services Contingency Options Act of 1953.

One other factor is the stability angle. After 26 years' service you can serve at a base of your own choice—maybe in the area where you'll want to retire.

Many men who retired at 20 years have later asked to be recalled to serve the additional 10 years. Under current policies, however, this is not permitted unless an individual is qualified in a critical AFSC.

In a nutshell, active duty for the additional 10 years contains all the benefits that made you decide on a military vs. a civilian career in the first place, plus a chance to progress through the warrant grades. And at the end of 30 years, your monthly check will keep you and let you enjoy the other benefits of retirement for the rest of your life.

For the man who isn't sure whether he'll stay around long enough to take advantage of these retirement benefits, *equity* is an important word. No matter how you figure it, if you get out of the Air Force at the end of your first four-year hitch, you lose the 20 percent of a $57,311 20-year retirement policy you have already built-up. If you quit at eight years, your equity is 40 percent. Forty percent of roughly $57,000 amounts to $22,800. That's a lot of money.

But don't sell the benefits of a 20-year retirement short. First of all you will be resuming civilian life with an assured income for the rest of your days. You can make it stretch by locating in an area where you can take advantage of military shopping facilities. There is increasing pressure to expand job opportunities for persons 40 or over. Many men have started a new career at this age, and the skills an airman may acquire while in uniform can be substantial dividend-producers here.

For a 20-year retirement, planning is even more important than it is when you're going for 30. The reason is obvious. You have a longer period of time for which to plan, and you'll want an area of occupation which will afford certain advancement opportunities.

Realizing the advantages and disadvantages of 20-year retirement, you can now start planning intelligently. Planning should be done in four major categories—and the earlier you start, the better.

Foremost attention-getter in planning is money. Financial planning is important, yet it is amazing how many people either haven't learned the rules or choose to ignore them. First, you live within your income. Next, save up a small cash reserve for emergencies. Then acquire protection for your family in the form of insurance, and finally, invest a little money in bonds or stocks. The important thing is to try to make savings and investments that will supplement retired pay or help buy your retirement home. Financial planning can become complicated, so it is advisable to seek professional advice. Any library can provide books that will give you the fundamentals.

Depending upon the outcome of your financial planning, the next item is geography. Where do you want to live? This depends, of course, on personal desires, climate, ability to get a job, cost of living, and a myriad of other factors. The important thing is, don't wait until the last minute before you start thinking about it. If you have the courage of a lion, the foresight of a fortuneteller, and more knowledge of real estate than the Department of Interior, you may even want to start investing in retirement property now—depending upon whether "now" is R-day minus one or 19 years.

Occupational planning means getting ready to hold down a job or go into business. First you decide what you want to do, then what you can do, and the difference between the two is the planning factor. Does it require more education or training? Then start getting it now, through the various educational facilities available to you in the Air Force or night schools. If you're considering employment in a completely alien field, the time to find out if you are suited for it is *before* you retire.

There's only one more broad area of planning before you can safely say you are prepared to retire intelligently. That's loafing planning. Yes, it is even necessary to make plans on how to loaf. Here you'll want good hobbies and you'll want to tie loafing into geography. If you like the ocean and deep-sea fishing, obviously you shouldn't retire in some distant inland community. Just remember that a rocking chair can rock you to sleep quickly—and permanently. You must keep busy, even when loafing.

Unfortunately, there is no "school solution" to how and when to retire. It's strictly an individual problem. But you've got most of the facts, so get copies of the Air Force Guide for Retirement, literature on economic statistics, a large scratch pad, and a stubby pencil. You've got some figuring to do. ★

Most airmen, regardless of duty, want their AFSCs upgraded. Without such action, they can't be promoted. To progress beyond 3-level skill, they must first take

AIRMAN PROFICIENCY TESTS

by M/Sgt. Paul J. Turner

An airman with a score of 90 is qualified to receive his 5; his buddy, with an 89 on the same test, has to meet a classification board. Why?

Some pass these tests with flying colors; others, who may be completely adept at doing their own particular tasks, fail. Why?

Answers are readily found in the Airman Career Program, initiated in 1949. APTs are an integral part of that program. In turn, the AFSC was created to replace the MOS (Military Occupational Specialty) of the former system.

Most MOSs identified all airmen in one given type of job, regardless of skill or rank. True, some fields had minor qualifications. For example, a mechanic was a 747; crew chief, 750; and engineer, 2750. However, even here a private first class could be a 2750 while a noncom might be a 747. The program proved inadequate in the selection, classification, training, and utilization of personnel needed by the Air Force following World War II. It offered no skill progression to the career airman. The present system established career fields, with ladders in each, to identify varying levels of knowledge and skill.

Proficiency tests were then designed to measure an airman's technical know-how. These pencil-and-paper tests, supervisor's recommendations, and completion of training are the keys to each airman's skill and rank progression.

Air Force Job Knowledge Tests

To enter any given field an airman must either complete formal tech school or pass a short 65-question Air Force Job Knowledge Test (AFJKT). A cook in civilian life might take this AFJKT upon entering the Air Force. If he passed the test he could be assigned into the food service career field. These entry tests measure a man's ability to enter the semiskilled (3) level of a career ladder.

To advance beyond this basic level, every airman must take and qualify through an APT. APTs have been written for 94 percent of all Air Force 5- and 7-level jobs.

Tests By, For, and Of Airmen

All tests are constructed, scored, and carefully studied by members of the 2200th Test Squadron at Mitchel AFB, N.Y. The basic principle underlying test construction is "tests for airmen, made by airmen." APTs are developed and revised by teams of senior NCOs, selected from different major commands. At Mitchel they call them subject-matter specialists.

For six weeks a team works to develop tests, or revise existing ones. All questions are written in job-language terms, and are based on the noncoms' personal experiences, backed up by tech orders and other reference materials. The team captain, a civilian test psychologist, referees to insure that each question is clear, accurate, and easily read.

In all, some 200 questions are approved by all team members—a single veto "kills" any test question.

From the pool of 200 questions, 150 are selected for the test. Two are used as samples, leaving 148 questions to answer on each APT. Before the test is approved and printed, it is "dry fired" to members of the team for any finishing touches.

Study Reference Lists

Final task of the team is to compile a Study Reference List. It lists the primary and general references which the NCOs who made the test feel would help airmen to prepare for it. The reference lists are available in base education offices and libraries.

The Supervisor is Still Needed

Remember the old saying about leading a horse to water? Tests measure what an airman knows, but not his willingness to apply his knowledge to the job. It is well to remember that passing an APT does not automatically bring a skill upgrading. An airman's supervisor must recommend this action, based upon the airman's demonstrated performance. The supervisor can deny upgrading on the basis of substandard application of knowledge.

Shredout Testing

A shredout, according to the USAF Dictionary, is "a subdivision of a specific Air Force career field or peacetime specialty code, set up to cover a specific type of equipment or a special part of a job description."

New supersonic aircraft and missiles have complicated systems and equipment. Many Air Force job descriptions, covering a general technical area, have become filled with many technical requirements. To train one technician in all of these would be an endless task, and his talents would be spread thin in each. As a result, Headquarters, USAF breaks many of these general areas into specific parts and identifies them as shredouts. Training time is shortened, but technicians become more specialized.

Within recent years, official shredouts have mushroomed until now there are nearly 350.

In most units airmen must convince classification board they have the technical know-how of higher skill.

When there were fewer shredouts, single APTs with 148 questions would cover all of them in one AFS. Under this system, airmen were required to answer questions about equipment which may have been unfamiliar to them. Special scoring methods had to be used to give everyone an equal chance.

However, the test squadron has devised a new APT to keep pace with the changing time. Early this year the first of these new shredout tests was given. Five shredouts for the turret systems mechanic, 32350, were written into the test. First, all airmen answer a group of 74 questions based on general turret systems operation and maintenance. Then each man selects one of five additional tests, each with 74 questions, based on the turret system that he works on (his shredout). Soon each man can stop worrying about answering questions on equipment in other shredouts. In jobs with official shredouts, this new type of test will replace the old ones within the next two years.

A Test Every 2½ Minutes

Each year more than 200,000 APTs are given—an average of one test every 2½ minutes, round-the-clock. Each test is given four times a year at nearly 1,000 locations. A one-week period is allowed for administering each group of tests throughout the world. Air National Guard and Air Reserve units may use a full month for administering the tests. These are scored separately from active-duty papers. The 1957 testing schedule is shown in Table 1, and little, if any, change is contemplated in the 1958 schedule.

There is a reason for each career field being scheduled into a certain quarter, or phase. All answer sheets are scored at the test squadron. Many career fields have a large number of assigned airmen, while others have only a few. The present test schedule maintains an even monthly workload for testing units and the test squadron.

Test Scoring

The first working day following the last testing session of a given period, test control officers send answer sheets to the test squadron. Several reasons prompt central grading: (1) when the program was started, an informal survey of airmen indicated they preferred centralized and impartial scoring to prevent the risk of "buddy-buddy" local systems; (2) an APT is designed for two years' use before revision, but procedures, directives, and

TABLE I

CAREER FIELDS TESTED

PHASE 1

22 Photomapping
23 Photographic
25 Weather
30 Radio & Radar Sys
32 Arm Sys Maint
40 Intricate Equip Maint
45 Production Control
53 Metal Working
55 Construction
57 Fire Fighting
58 Fabric, Leather and Rubber
59 Marine
65 Procurement
67 Fin Acct & Auditing
68 Stat Svs & Machine Acct
70 Administration
72 Information
74 Special Services
75 Education & Training
77 Air Police
92 Air Crew Protection

STATESIDE	OVERSEAS
Jan 14 - 19	Jan 7 - 12
Apr 15 - 20	Apr 8 - 13
Jul 15 - 20	Jul 8 - 13
Oct 14 - 19	Oct 7 - 12

PHASE 2

36 Wire Maint
42 Acft Accessories Maint
43 Acft & Eng Maint
64 Supply
90 Medical
98 Dental

STATESIDE	OVERSEAS
Feb 11 - 16	Feb 4 - 9
May 13 - 18	May 6 - 11
Aug 12 - 17	Aug 5 - 10
Nov 12 - 16	Nov 4 - 9

PHASE 3

20 Intelligence
27 Air Traffic Control and Warning
29 Comm Opns
46 Munitions & Weapons Maint
47 Motorized & Misc Equip
56 Utilities
60 Transportation
62 Food Service
73 Personnel

STATESIDE	OVERSEAS
Mar 11 - 16	Mar 4 - 9
Jun 10 - 15	Jun 3 - 8
Sep 16 - 21	Sep 9 - 14
Dec 9 - 14	Dec 2 - 7

NOT TESTED:
31 Pilotless Acft Guid Contr Sys
33 Atomic Wea
34 Tng Devices
44 Rocket Propulsion
71 Printing
82 Special Inves

manuals change—and so can some of the correct answers in the test (in the centralized scoring system the test squadron can discard these questions which are no longer valid); and (3) sometimes printing errors appear in new tests, with the 2200th again being able to eliminate these questions in its special scoring process. Approximately 25,000 score sheets arrive monthly from worldwide bases in packages containing from one to hundreds of answer sheets for as many as 40 different tests. These must be manually sorted and checked—stray pencil marks erased, and questions redlined if more than one answer has been marked.

Answer sheets are then fed into IBM machines where they are scored automatically. The number of correct answers—the "raw score"—is checked and double-checked for each answer sheet.

What Your Score Means

A raw score by itself doesn't mean much, since one should expect to get more correct answers on a nontechnical test than on one more specialized. Consequently, it would penalize the man taking the hard test if the Air Force said, for instance, that 70 or 80, or some other number, was "passing" on each APT. It is necessary then to convert these raw scores into scores which put all test results on an equal basis.

The Air Force equalizes test difficulty by a system of values called "standard scores." The standard score for *each* APT during *each* test cycle is based on all airmen who have ever taken that edition of the test. When all answer sheets for one test have been scored, the average raw score is converted to a standard score of 100. In an easier test, the average may be 110 correct answers—this would be reported as 100; in the harder tests, the average may be 80 correct answers—this too becomes 100. An airman receiving 100 on his APT knows that he got the average score for his test. Scores below 100 are below average, and those above are better than average.

An electric computer then places the standard scores into one of three categories—A, B, or C. These categories, scores for each, and what they mean are shown in Table 2.

These groupings have been established so that desired Air Force skill needs are met. Those in the questionable or B category (8 to 10 percent) must demonstrate their knowledge to a classification board to qualify, or retake the test during subsequent test periods. Actually, in the 7-level tests about 50 percent will qualify with A scores, and 40 percent fail with C scores; for 5-level, a larger 69 percent will qualify and but 23 percent fail.

Continual Process

Final step at Mitchel is to prepare a roster and forward it to each base, giving a list of examinees, their standard scores, and qualification categories. This must be completed before an avalanche of 25,000 answer sheets arrives at the test squadron for the next month. The test control officer receives the roster and passes the scores on to squadrons. Here an entry is made on the airman's Form 7, and a personnel actions memorandum is prepared to inform all examinees of their scores.

Electronic-scoring methods work miracles in discovering airmen who have "gotten together on the correct answers" during the test period—sometimes thousands of miles away. In these few instances, things go pretty hard on the airmen involved. But even so, every airman is competing with all others in his AFSC, and if he gives another a correct answer he might just as well subtract a correct answer from his own score.

Problems

Asked to cite any important problems in the APT program, Lt. Col. Henry E. Abbott, Jr., test squadron commander, explains that "recent publicity on the availability of Study Reference Lists has helped airmen prepare themselves for the tests. Until recently this has been one of our larger problems.

"Two problems are still with us," Colonel Abbott continues. "These are the use of obsolete tests and late mailing of answer sheets by field testing units. Both of these delay upgrading, and numerous discrepancy letters are constantly being written to prevent recurrences. In the main, these discrepancies are attributed to the rapid turnover of test administration personnel and a consequent inexperience with the program. When test administration personnel become more experienced the problems of obsolete tests and late mailing will undoubtedly become minimized."

Timely Do's

Colonel Abbott offers these suggestions to airmen who hope to qualify on an APT: "(1) Know your specialty, (2) use the Study Reference List and your supervisor's help in preparing for tests, (3) do your own work, (4) make heavy black marks on your answer sheets for one answer to each question, and (5) don't put stray pencil marks any place on your answer sheet or test booklet." ★

TABLE 2

CATEGORY	5-LEVEL APT	7-LEVEL APT	MEANING OF SCORE
A	90 and above	100 and above	Qualified in mandatory AFS knowledge
B	85 - 89	95 - 99	Qualified on APT only if knowledge is confirmed by a classification board
C	Below 85	Below 95	Unqualified

TIPS FOR SAFE WINTER DRIVING

Pilots use a cold-weather checklist for safe winter flying. Here's a winter-safety checklist for the more than 800,000 members of the Air Force who are licensed to drive.

1. Accept Your Responsibility.

Do all in your power to drive without accident. Winterize your car, yourself, and your driving before winter comes. Don't blame the weatherman for an accident—you are the only one who can avoid getting yourself into trouble.

2. Use Good Tires and Tire Chains.

Whether you use regular tires or snow tires, be sure the tread is in good condition and not worn smooth. Use reinforced tire chains on snow and ice, since they cut stopping distances about half and give four to seven times more traction than tires without chains. But, even with the help of the best snow tires or tire chains, slower than normal speeds are a must on snow and ice.

3. Keep Your Windshield and Windows Clear.

Clean all the snow and ice off your windshield and all other windows of your car. Be sure your windshield wiper blades are in good condition and don't streak. Wipe off the inside of all your windows and make sure your heater and defroster are working properly. You have to see danger to avoid it. Don't forget, danger may approach from the sides or rear as well as from the front.

4. Get The "Feel" Of The Road.

Try your brakes occasionally while driving slowly and away from traffic. Find out just how slippery the road is and adjust your speed to road and weather conditions. Remember, you can't stop on an icy dime.

5. Follow At A Safe Distance.

Keep well back of the vehicle ahead—give yourself plenty of room to stop. Remember, it takes three to 12 times as far to stop on snow and ice as on dry pavement. It's hard to explain why you couldn't stop when the other fellow did.

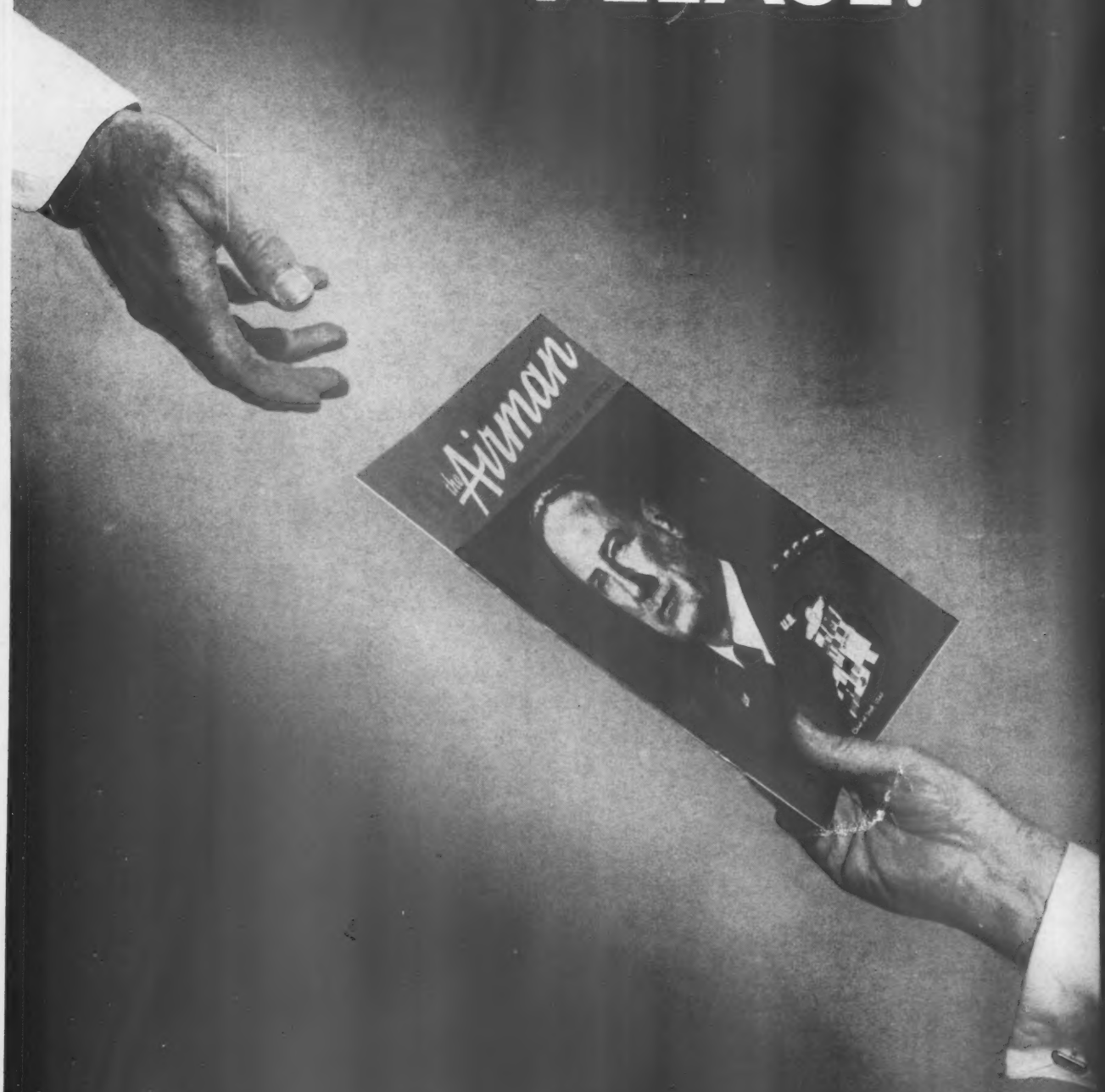
6. Pump Your Brakes.

On snow and ice, the best technique for stopping quickly and with full control of your car is a fast up-and-down pumping of your brakes. Jamming and "freezing" on your brakes is almost certain to lock your wheels, and this is apt to throw your car into an uncontrollable and dangerous skid.

ARE YOU DRIVING A HEARSE?

(See Page 13)

PLEASE!



Pass It On